UNITED STATES DEPARTMENT OF THE INTERIOR

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A computer program to convert degrees 2Θ to interplanar spacings and conversion tables for Cu Kα_1, Kα_2 and weighted mean radiation

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ABSTRACT

Tables that allow conversion of degrees 2Θ to interplanar spacings for use in X-ray diffraction analysis have been generated for Cu $K\alpha_1$, $K\alpha_2$, and weighted mean X-ray radiation, using a C language computer program. This interactive program also permits the user to generate conversion tables for Cr, Co, Fe, Mo, and Ni target materials and any other X-ray radiation wavelengths. The various theoretical and practical aspects governing the selection of target materials (wavelength of emitted radiation from the X-ray tube) are also discussed.

INTRODUCTION

A computer program has been written to generate tables which allow the user to convert degrees 2Θ to interplanar spacings. The program, which was written in C language and will operate under UNIX system 5 or MS-DOS version 2.x, is interactive and prompts the user for all necessary information. Although permanently sealed X-ray tubes are generally available with Cu, Co, Cr, Fe, Mo and Ni targets, we have supplied conversion tables solely for copper radiation. While the other target materials are available, in practice they are not commonly used for X-ray diffraction analysis.

The calculation performed by the program (Appendixes 1 and 2) uses the Bragg equation to generate the conversion tables. Atoms in crystalline substances are arranged in symmetrical, repeating, three-dimensional planes. X-ray diffraction can be visualized as the reflection of incident radiation from a large number of parallel planes of atoms. The number, orientation, and spacings of these atomic planes are determined by the crystalline structure of the analyzed specimen. Bragg's law is represented by the equation:

$$n \lambda = 2d \sin \Theta$$

where n is an integer giving the order of diffraction, λ is the wavelength of the incident radiation, d (where $n = 1$) is the interplanar spacings of the crystal or defracting planes, and Θ, the Bragg angle, is the angle between the incident X-ray beam and the atomic planes. The wavelength of the incident radiation is dependent on the atomic number, and therefore the metallic composition, of the X-ray tube target material. The diffraction of X-rays of a given wavelength differs from reflection as in a mirror in that the reflections can not occur at all angles; the angles at which diffraction takes place must satisfy the Bragg equation.

X-rays emitted from the tube are a mixture of two distinct categories of radiation: (1) the X-ray lines characteristic of the target material and (2) the continuum or white X-rays which are present at all wavelengths or frequencies below the excitation voltage (the operating potential) of the X-ray tube (Parrish and Kohler, 1965). The characteristic X-rays generated with the above target materials include the K and L series lines. However, because of the low energy (long wavelength) of the L series, they are rapidly attenuated by air and the tube window and are not of concern here. The K lines consist of a doublet, $K\alpha_1$ and $K\alpha_2$, which have nearly the same wavelength, and a K_β line, which consists of three lines, usually unresolved, of shorter wavelength. Inasmuch as only Kα line radiation is normally used in X-ray diffraction, the remaining radiation must be removed. The K_β lines may be filtered out either by metal foil filters inserted in the X-ray beam to preferentially absorb a certain wavelength or band of wavelengths or by monochromatization, using crystals of known interplaner spacings in the incident or diffracted beam. The continuum (white) radiation can be filtered out with a peak-height analyzer where a diffractometer is used.

The program allows the user to select a conversion table for Cu, Co Cr, Fe, Mo, and Ni targets based on either the $K\alpha_1$, $K\alpha_2$, or a weighted mean (Philips Electronic Instruments, Inc., un-dated instruction manual) of the two $K\alpha$ lines. The X-ray wavelengths used in the program were taken from the CRC Handbook of Chemistry and Physics (Bearden, 1978). This program also contains the option to calculate $K\alpha$ or K_β conversion tables for any wavelength of X-ray radiation selected by the user. This option can be used to generate conversion tables for other, less common, target materials. The $K\alpha_1$ and $K\alpha_2$ line separation or splitting may not be resolved by most powder diffraction systems in the lower part of the 2θ range. For such unresolved reflections, the weighted mean wavelengths are calculated using the equation:

$$(2(K\alpha_1)+K\alpha_2)/3$$

This equation gives the $K\alpha_1$ lines more "weight" because of the greater intensity of the $K\alpha_1$ lines relative to the $K\alpha_2$ lines. Where $K\alpha_1$ and $K\alpha_2$ reflections are resolved, accuracies such as those shown in tables 1 and 2 may be achieved. Because of the resolution problem associated with the $K\alpha_1$ and $K\alpha_2$ doublet, some researcher prefer to use K_β radiation. K_β conversion tables may be generated by using the program option to select any wavelength of radiation. The K_β wavelengths (Bearden, 1978) for the most common target materials are given in table 3.

All calculations were done using 64-bit, double-precision, floating-point numbers as defined in the Institute of Electrical and Electronic Engineers microprocessor floating-point standard. This standard allows for 53 bits of binary precision, which translates to about 15 digits of decimal precision. This use of double precision lessens the effects of rounding errors by calculating the interplanar spacings to 15 digits before rounding the numbers off to five decimal places. Previously published X-ray diffraction conversion tables (Fang and Bloss, 1966) did not utilize double precision in their programming and, therefore, contained greater rounding errors and could not accurately generate data beyond four decimal places. Other conversion tables (Brown, 1980) did not report data to $180^\circ 2\theta$ or at $.01^\circ 2\theta$ intervals

Each target material listed above produces X-rays of characteristic energy and wavelength, making each target suitable for specific applications. Copper $K\alpha$ radiation is the most commonly used radiation for diffraction purposes owing to its relatively high peak energy, intensity, low peak-to-background ratio, convenient wavelength, high heat conductivity of the target material, and the symmetry (minimal trailing-off on the longer wavelength side) of the $K\alpha_1$ and $K\alpha_2$ composite peaks.

When a specimen contains more than a small percentage of iron, Co or Fe $K\alpha$ radiation should be used to avoid interference (high background or film darkening) from fluorescent radiation (iron X-rays) caused by the excitation of the iron by Cu $K\alpha$ radiation. In samples that contain high percentages of iron, cobalt radiation has some advantages over that of iron because Co $K\alpha$ radiation is not as strongly absorbed, and any interfering Co K_β radiation is

INTERPLANAR SPACING SPLIT ($K\alpha_2$-$K\alpha_1$)

$K\alpha$ Radiation	$2^o 2\theta$	$5^o 2\theta$	$15^o 2\theta$	$25^o 2\theta$	$50^o 2\theta$	$100^o 2\theta$
CR	.11191	.04477	.01496	.00902	.00462	.00254
Fe	.11282	.04514	.0150[illegible]	.00909	.00466	.00257
Co	.11131	.04453	.01488	.00898	.00459	.00254
Ni	.10993	.04398	.01470	.00886	.00454	.00251
Cu	.10967	.04388	.01467	.00885	.00453	.00250
Mo	.12291	.04917	.01643	.00991	.00508	.00280

Table 1. Shows the apparent difference between the interplanar spacings in angstroms for $K\alpha_1$ and $K\alpha_2$ radiation at the given two theta angles.

DEGREES 2θ SPLIT ($K\alpha_2$-$K\alpha_1$)

$K\alpha$ Radiation	$2^o 2\theta$	$5^o 2\theta$	$15^o 2\theta$	$25^o 2\theta$	$50^o 2\theta$	$100^o 2\theta$
Cr	-	.01	.02	.04	.09	.23
Fe	-	.01	.03	.05	.11	.28
Co	-	.01	.03	.06	.12	.29
Ni	-	.01	.03	.06	.12	.32
Cu	-	.01	.04	.06	.13	.34
Mo	.01	.03	.09	.15	.32	.83

Table 2. Shows the difference between the $K\alpha_1$ and $K\alpha_2$ lines in degrees at the given 2θ angles.

K_β Wavelengths

$K_{\beta 1,3}$ radiation	λ	$K_{\beta 1,3}$ radiation	λ
Cr	2.08487	Ni	1.500135
Fe	1.75661	Cu	1.392218
Co	1.62079		

Table 3. K_β wavelengths for Cr, Fe, Co, Ni, and Cu target materials from Bearden (1978).

absorbed or filtered out by the iron (Brindley, 1961). Similarly, a Ni target tube may be used to eliminate fluorescence problems associated with specimens that contain high proportions of cobalt.

Cr Kα radiation is used because of the greater resolution obtainable with the longer wavelength. Lower angle, long interplanar spacings, which would not be otherwise observable, are shifted into the measureable 2Θ range with Cr Kα radiation. However, because of its long wavelength and low energy, Cr Kα radiation is quickly absorbed, and helium- or hydrogen-filled diffraction chambers and/or slow scan rates are required. Conversely, Mo Kα radiation, because of its shorter wavelength, is used to shift the diffraction maxima resulting from high angle, shorter interplanar spacings toward the low 2Θ angles.

The conversion tables that follow show the calculated interplanar spacings to .01°.

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CONVERSION TABLES

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
0.00	0.00000	8834.08102	4417.04053	2944.69370	2208.52030	1766.81626	1472.34690	1262.01165	1104.26022	981.56466	0.00
0.10	883.40821	803.09840	736.17355	679.54484	631.00594	588.93890	552.13024	519.65201	490.78248	464.95185	0.10
0.20	441.70427	420.67076	401.54938	384.09074	368.08698	353.36352	339.77264	327.18849	315.50321	304.62381	0.20
0.30	294.46970	284.97070	276.06539	267.69979	259.82629	252.40271	245.39154	238.75936	232.47624	226.51533	0.30
0.40	220.85247	215.46585	210.33573	205.44423	200.77506	196.31342	192.04576	187.95970	184.04389	180.28792	0.40
0.50	176.68218	173.21785	169.88676	166.68137	163.59470	160.62027	157.75207	154.98452	152.31239	149.73085	0.50
0.60	147.23536	144.82168	142.48587	140.22421	138.03323	135.90967	133.85045	131.85271	129.91372	128.03093	0.60
0.70	126.20194	124.42447	122.69638	121.01563	119.38030	117.78859	116.23876	114.72919	113.25832	111.82470	0.70
0.80	110.42691	109.06364	107.73361	106.43564	105.16857	103.93132	102.72284	101.54214	100.38827	99.26034	0.80
0.90	98.15746	97.07883	96.02365	94.99116	93.98064	92.99139	92.02275	91.07409	90.14478	89.23425	0.90
1.00	88.34193	87.46728	86.60978	85.76893	84.94425	84.13528	83.34158	82.56270	81.79826	81.04784	1.00
1.10	80.31106	79.58756	78.87698	78.17898	77.49322	76.81939	76.15717	75.50628	74.86642	74.23731	1.10
1.20	73.61869	73.01029	72.41187	71.82318	71.24398	70.67405	70.11317	69.56112	69.01769	68.48269	1.20
1.30	67.95593	67.43720	66.92634	66.42315	65.92748	65.43915	64.95800	64.48388	64.01663	63.55610	1.30
1.40	63.10215	62.65464	62.21343	61.77839	61.34940	60.92632	60.50904	60.09744	59.69140	59.29080	1.40
1.50	58.89556	58.50554	58.12066	57.74081	57.36589	56.99581	56.63047	56.26979	55.91368	55.56204	1.50
1.60	55.21480	54.87187	54.53318	54.19864	53.86819	53.54174	53.21922	52.90056	52.58570	52.27456	1.60
1.70	51.96709	51.66321	51.36286	51.06599	50.77253	50.48243	50.19562	49.91205	49.63166	49.35441	1.70
1.80	49.08025	48.80911	48.54095	48.27572	48.01337	47.75386	47.49714	47.24317	46.99190	46.74329	1.80
1.90	46.49729	46.25387	46.01299	45.77460	45.53868	45.30517	45.07404	44.84526	44.61879	44.39460	1.90
2.00	44.17265	43.95291	43.73534	43.51992	43.30661	43.09538	42.88620	42.67904	42.47388	42.27067	2.00
2.10	42.06941	41.87005	41.67257	41.47695	41.28315	41.09116	40.90095	40.71248	40.52575	40.34073	2.10
2.20	40.15738	39.97570	39.79565	39.61721	39.44037	39.26511	39.09139	38.91920	38.74853	38.57934	2.20
2.30	38.41163	38.24537	38.08054	37.91712	37.75511	37.59447	37.43519	37.27726	37.12066	36.96536	2.30
2.40	36.81136	36.65864	36.50718	36.35697	36.20799	36.06022	35.91366	35.76828	35.62408	35.48103	2.40
2.50	35.33913	35.19836	35.05870	34.92015	34.78269	34.64631	34.51100	34.37674	34.24352	34.11133	2.50
2.60	33.98015	33.84998	33.72080	33.59261	33.46539	33.33913	33.21381	33.08944	32.96599	32.84347	2.60
2.70	32.72185	32.60112	32.48129	32.36233	32.24424	32.12701	32.01063	31.89510	31.78039	31.66650	2.70
2.80	31.55343	31.44116	31.32969	31.21901	31.10910	30.99997	30.89160	30.78399	30.67712	30.57100	2.80
2.90	30.46560	30.36093	30.25698	30.15373	30.05119	29.94935	29.84819	29.74771	29.64791	29.54877	2.90
3.00	29.45030	29.35248	29.25531	29.15878	29.06289	28.96762	28.87298	28.77895	28.68553	28.59272	3.00
3.10	28.50051	28.40889	28.31786	28.22741	28.13754	28.04823	27.95950	27.87132	27.78369	27.69662	3.10
3.20	27.61009	27.52410	27.43864	27.35372	27.26932	27.18543	27.10206	27.01921	26.93685	26.85500	3.20
3.30	26.77364	26.69278	26.61240	26.53251	26.45309	26.37415	26.29568	26.21767	26.14012	26.06304	3.30
3.40	25.98640	25.91022	25.83448	25.75918	25.68433	25.60990	25.53591	25.46234	25.38919	25.31647	3.40
3.50	25.24416	25.17226	25.10077	25.02968	24.95900	24.88872	24.81883	24.74933	24.68022	24.61149	3.50
3.60	24.54315	24.47519	24.40760	24.34038	24.27354	24.20705	24.14094	24.07518	24.00978	23.94474	3.60
3.70	23.88004	23.81570	23.75170	23.68805	23.62473	23.56175	23.49911	23.43680	23.37482	23.31317	3.70
3.80	23.25184	23.19084	23.13015	23.06978	23.00973	22.94998	22.89055	22.83142	22.77260	22.71408	3.80
3.90	22.65586	22.59794	22.54032	22.48298	22.42594	22.36919	22.31273	22.25655	22.20065	22.14503	3.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
4.00	22.08969	22.03462	21.97983	21.92532	21.87107	21.81709	21.76337	21.70992	21.65673	21.60381	4.00
4.10	21.55114	21.49872	21.44656	21.39466	21.34300	21.29160	21.24044	21.18952	21.13885	21.08842	4.10
4.20	21.03824	20.98829	20.93857	20.88910	20.83985	20.79084	20.74206	20.69350	20.64518	20.59707	4.20
4.30	20.54920	20.50154	20.45411	20.40689	20.35989	20.31311	20.26654	20.22019	20.17405	20.12811	4.30
4.40	20.08239	20.03688	19.99157	19.94646	19.90156	19.85686	19.81236	19.76806	19.72395	19.68005	4.40
4.50	19.63634	19.59282	19.54950	19.50636	19.46342	19.42067	19.37810	19.33572	19.29352	19.25151	4.50
4.60	19.20968	19.16804	19.12657	19.08528	19.04417	19.00324	18.96248	18.92190	18.88149	18.84125	4.60
4.70	18.80119	18.76129	18.72157	18.68201	18.64262	18.60339	18.56433	18.52544	18.48670	18.44813	4.70
4.80	18.40972	18.37147	18.33337	18.29544	18.25766	18.22004	18.18257	18.14526	18.10810	18.07109	4.80
4.90	18.03423	17.99752	17.96097	17.92456	17.88830	17.85218	17.81621	17.78038	17.74470	17.70917	4.90
5.00	17.67377	17.63851	17.60340	17.56843	17.53359	17.49889	17.46433	17.42991	17.39562	17.36147	5.00
5.10	17.32745	17.29356	17.25981	17.22618	17.19269	17.15933	17.12610	17.09300	17.06002	17.02717	5.10
5.20	16.99445	16.96185	16.92938	16.89703	16.86481	16.83271	16.80073	16.76887	16.73714	16.70552	5.20
5.30	16.67402	16.64264	16.61138	16.58024	16.54921	16.51830	16.48751	16.45683	16.42626	16.39581	5.30
5.40	16.36547	16.33524	16.30512	16.27512	16.24522	16.21544	16.18576	16.15619	16.12673	16.09738	5.40
5.50	16.06813	16.03899	16.00996	15.98103	15.95221	15.92349	15.89487	15.86636	15.83794	15.80963	5.50
5.60	15.78143	15.75332	15.72531	15.69740	15.66959	15.64188	15.61427	15.58675	15.55933	15.53201	5.60
5.70	15.50478	15.47765	15.45061	15.42367	15.39682	15.37007	15.34341	15.31684	15.29036	15.26397	5.70
5.80	15.23768	15.21148	15.18536	15.15934	15.13340	15.10755	15.08180	15.05613	15.03054	15.00505	5.80
5.90	14.97964	14.95431	14.92907	14.90392	14.87885	14.85387	14.82897	14.80415	14.77942	14.75477	5.90
6.00	14.73020	14.70571	14.68131	14.65698	14.63274	14.60857	14.58449	14.56048	14.53656	14.51271	6.00
6.10	14.48894	14.46525	14.44164	14.41810	14.39464	14.37126	14.34795	14.32472	14.30156	14.27848	6.10
6.20	14.25547	14.23254	14.20968	14.18689	14.16418	14.14154	14.11897	14.09648	14.07405	14.05170	6.20
6.30	14.02942	14.00721	13.98507	13.96299	13.94099	13.91906	13.89720	13.87540	13.85368	13.83202	6.30
6.40	13.81043	13.78891	13.76745	13.74606	13.72474	13.70348	13.68229	13.66117	13.64011	13.61911	6.40
6.50	13.59818	13.57732	13.55652	13.53578	13.51510	13.49449	13.47395	13.45346	13.43304	13.41267	6.50
6.60	13.39237	13.37214	13.35196	13.33184	13.31179	13.29179	13.27186	13.25198	13.23217	13.21241	6.60
6.70	13.19271	13.17307	13.15349	13.13397	13.11451	13.09510	13.07575	13.05646	13.03722	13.01805	6.70
6.80	12.99892	12.97986	12.96085	12.94189	12.92300	12.90415	12.88536	12.86663	12.84795	12.82933	6.80
6.90	12.81076	12.79224	12.77378	12.75537	12.73701	12.71870	12.70045	12.68225	12.66411	12.64601	6.90
7.00	12.62797	12.60998	12.59204	12.57415	12.55631	12.53852	12.52078	12.50309	12.48546	12.46787	7.00
7.10	12.45033	12.43284	12.41540	12.39801	12.38067	12.36338	12.34613	12.32894	12.31179	12.29469	7.10
7.20	12.27763	12.26063	12.24367	12.22676	12.20989	12.19307	12.17630	12.15957	12.14289	12.12626	7.20
7.30	12.10967	12.09313	12.07663	12.06017	12.04377	12.02740	12.01108	11.99481	11.97858	11.96239	7.30
7.40	11.94625	11.93015	11.91409	11.89808	11.88211	11.86618	11.85030	11.83446	11.81866	11.80290	7.40
7.50	11.78719	11.77152	11.75588	11.74029	11.72475	11.70924	11.69377	11.67835	11.66296	11.64762	7.50
7.60	11.63232	11.61705	11.60183	11.58665	11.57150	11.55640	11.54134	11.52631	11.51133	11.49638	7.60
7.70	11.48147	11.46660	11.45177	11.43698	11.42222	11.40751	11.39283	11.37819	11.36359	11.34902	7.70
7.80	11.33450	11.32001	11.30555	11.29114	11.27676	11.26241	11.24811	11.23384	11.21960	11.20541	7.80
7.90	11.19124	11.17712	11.16303	11.14897	11.13495	11.12097	11.10702	11.09311	11.07923	11.06539	7.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
8.00	11.05158	11.03780	11.02406	11.01036	10.99668	10.98304	10.96944	10.95587	10.94233	10.92883	8.00
8.10	10.91536	10.90192	10.88852	10.87515	10.86181	10.84851	10.83523	10.82199	10.80879	10.79561	8.10
8.20	10.78247	10.76936	10.75628	10.74323	10.73022	10.71723	10.70428	10.69136	10.67847	10.66561	8.20
8.30	10.65278	10.63999	10.62722	10.61449	10.60178	10.58911	10.57646	10.56385	10.55126	10.53871	8.30
8.40	10.52619	10.51369	10.50123	10.48880	10.47639	10.46401	10.45167	10.43935	10.42706	10.41480	8.40
8.50	10.40257	10.39037	10.37820	10.36605	10.35394	10.34185	10.32979	10.31776	10.30576	10.29378	8.50
8.60	10.28184	10.26992	10.25803	10.24616	10.23432	10.22252	10.21073	10.19898	10.18725	10.17555	8.60
8.70	10.16388	10.15223	10.14061	10.12902	10.11745	10.10591	10.09440	10.08291	10.07145	10.06001	8.70
8.80	10.04800	10.03722	10.02586	10.01453	10.00322	9.99194	9.98069	9.96946	9.95825	9.94707	8.80
8.90	9.93592	9.92479	9.91369	9.90261	9.89155	9.88052	9.86952	9.85854	9.84758	9.83665	8.90
9.00	9.82574	9.81486	9.80400	9.79317	9.78236	9.77157	9.76081	9.75007	9.73935	9.72866	9.00
9.10	9.71799	9.70735	9.69673	9.68613	9.67555	9.66500	9.65447	9.64397	9.63348	9.62302	9.10
9.20	9.61259	9.60217	9.59178	9.58141	9.57106	9.56074	9.55044	9.54015	9.52990	9.51966	9.20
9.30	9.50945	9.49926	9.48909	9.47894	9.46881	9.45871	9.44862	9.43856	9.42852	9.41850	9.30
9.40	9.40851	9.39853	9.38858	9.37864	9.36873	9.35884	9.34897	9.33912	9.32929	9.31948	9.40
9.50	9.30969	9.29993	9.29018	9.28045	9.27075	9.26106	9.25140	9.24175	9.23213	9.22252	9.50
9.60	9.21294	9.20338	9.19383	9.18431	9.17480	9.16532	9.15585	9.14641	9.13698	9.12757	9.60
9.70	9.11819	9.10882	9.09947	9.09014	9.08083	9.07154	9.06227	9.05301	9.04378	9.03456	9.70
9.80	9.02537	9.01619	9.00703	8.99789	8.98877	8.97966	8.97058	8.96151	8.95247	8.94344	9.80
9.90	8.93442	8.92543	8.91646	8.90750	8.89856	8.88964	8.88074	8.87185	8.86298	8.85414	9.90
10.00	8.84530	8.83649	8.82769	8.81891	8.81015	8.80141	8.79268	8.78397	8.77528	8.76661	10.00
10.10	8.75795	8.74931	8.74069	8.73208	8.72349	8.71492	6.70636	8.69783	8.68930	8.68080	10.10
10.20	8.67231	8.66384	8.65538	8.64695	8.63852	8.63012	8.62173	8.61336	8.60500	8.59666	10.20
10.30	8.58834	8.58003	8.57174	8.56346	8.55520	8.54696	8.53873	8.53052	8.52233	8.51415	10.30
10.40	8.50598	8.49783	8.48970	8.48158	8.47348	8.46539	8.45732	8.44927	8.44123	8.43320	10.40
10.50	8.42520	8.41720	8.40922	8.40126	8.39331	8.38538	8.37746	8.36956	8.36167	8.35379	10.50
10.60	8.34594	8.33809	8.33026	8.32245	8.31465	8.30687	8.29910	8.29134	8.28360	8.27587	10.60
10.70	8.26816	8.26046	8.25278	8.24511	8.23746	8.22982	8.22219	8.21458	8.20698	8.19940	10.70
10.80	8.19183	8.18427	8.17673	8.16920	8.16169	8.15419	8.14670	8.13923	8.13177	8.12433	10.80
10.90	8.11690	8.10948	8.10207	8.09468	8.08731	8.07994	8.07259	8.06526	8.05794	8.05063	10.90
11.00	8.04333	8.03605	8.02878	8.02152	8.01428	8.00705	7.99983	7.99263	7.98543	7.97826	11.00
11.10	7.97109	7.96394	7.95680	7.94967	7.94256	7.93546	7.92837	7.92129	7.91423	7.90718	11.10
11.20	7.90014	7.89312	7.88611	7.87911	7.87212	7.86514	7.85818	7.85123	7.84429	7.83737	11.20
11.30	7.83046	7.82355	7.81667	7.80979	7.80292	7.79607	7.78923	7.78240	7.77559	7.76878	11.30
11.40	7.76199	7.75521	7.74844	7.74169	7.73494	7.72821	7.72149	7.71478	7.70808	7.70139	11.40
11.50	7.69472	7.68806	7.68141	7.67477	7.66814	7.66152	7.65492	7.64832	7.64174	7.63517	11.50
11.60	7.62861	7.62206	7.61552	7.60900	7.60248	7.59598	7.58949	7.58301	7.57654	7.57008	11.60
11.70	7.56363	7.55719	7.55077	7.54435	7.53795	7.53156	7.52518	7.51880	7.51244	7.50610	11.70
11.80	7.49976	7.49343	7.48711	7.48081	7.47451	7.46822	7.46195	7.45569	7.44943	7.44319	11.80
11.90	7.43696	7.43074	7.42452	7.41832	7.41213	7.40595	7.39978	7.39362	7.38747	7.38134	11.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
12.00	7.37521	7.36909	7.36298	7.35688	7.35079	7.34472	7.33865	7.33259	7.32654	7.32051	12.00
12.10	7.31448	7.30846	7.30245	7.29646	7.29047	7.28449	7.27852	7.27256	7.26661	7.26068	12.10
12.20	7.25475	7.24883	7.24292	7.23702	7.23113	7.22525	7.21938	7.21352	7.20766	7.20182	12.20
12.30	7.19599	7.19017	7.18435	7.17855	7.17275	7.16697	7.16119	7.15543	7.14967	7.14392	12.30
12.40	7.13818	7.13245	7.12673	7.12102	7.11532	7.10963	7.10394	7.09827	7.09260	7.08695	12.40
12.50	7.08130	7.07566	7.07003	7.06441	7.05880	7.05320	7.04761	7.04202	7.03645	7.03088	12.50
12.60	7.02532	7.01977	7.01423	7.00870	7.00318	6.99767	6.99216	6.98667	6.98118	6.97570	12.60
12.70	6.97023	6.96477	6.95932	6.95387	6.94843	6.94301	6.93759	6.93218	6.92678	6.92138	12.70
12.80	6.91600	6.91062	6.90525	6.89989	6.89454	6.88920	6.88387	6.87854	6.87322	6.86791	12.80
12.90	6.86261	6.85732	6.85203	6.84676	6.84149	6.83623	6.83097	6.82573	6.82049	6.81527	12.90
13.00	6.81005	6.80483	6.79963	6.79443	6.78925	6.78407	6.77889	6.77373	6.76857	6.76342	13.00
13.10	6.75828	6.75315	6.74803	6.74291	6.73780	6.73270	6.72761	6.72252	6.71744	6.71237	13.10
13.20	6.70731	6.70225	6.69721	6.69217	6.68714	6.68211	6.67709	6.67208	6.66708	6.66209	13.20
13.30	6.65710	6.65212	6.64715	6.64219	6.63723	6.63228	6.62734	6.62241	6.61748	6.61256	13.30
13.40	6.60765	6.60274	6.59784	6.59295	6.58807	6.58320	6.57833	6.57347	6.56861	6.56376	13.40
13.50	6.55893	6.55409	6.54927	6.54445	6.53964	6.53483	6.53004	6.52525	6.52047	6.51569	13.50
13.60	6.51092	6.50616	6.50141	6.49666	6.49192	6.48718	6.48246	6.47774	6.47303	6.46832	13.60
13.70	6.46362	6.45893	6.45424	6.44957	6.44489	6.44023	6.43557	6.43092	6.42628	6.42164	13.70
13.80	6.41701	6.41238	6.40777	6.40316	6.39855	6.39395	6.38936	6.38478	6.38020	6.37563	13.80
13.90	6.37107	6.36651	6.36196	6.35741	6.35287	6.34834	6.34382	6.33930	6.33479	6.33028	13.90
14.00	6.32578	6.32129	6.31680	6.31232	6.30785	6.30338	6.29892	6.29447	6.29002	6.28558	14.00
14.10	6.28114	6.27671	6.27229	6.26788	6.26346	6.25906	6.25466	6.25027	6.24589	6.24151	14.10
14.20	6.23713	6.23277	6.22841	6.22405	6.21970	6.21536	6.21103	6.20670	6.20237	6.19805	14.20
14.30	6.19374	6.18944	6.18514	6.18084	6.17656	6.17227	6.16800	6.16373	6.15946	6.15521	14.30
14.40	6.15095	6.14671	6.14247	6.13823	6.13401	6.12978	6.12557	6.12136	6.11715	6.11295	14.40
14.50	6.10876	6.10457	6.10039	6.09621	6.09204	6.08788	6.08372	6.07957	6.07542	6.07128	14.50
14.60	6.06714	6.06301	6.05889	6.05477	6.05065	6.04655	6.04245	6.03835	6.03426	6.03017	14.60
14.70	6.02609	6.02202	6.01795	6.01389	6.00983	6.00578	6.00173	5.99769	5.99366	5.98963	14.70
14.80	5.98560	5.98158	5.97757	5.97356	5.96956	5.96556	5.96157	5.95758	5.95360	5.94962	14.80
14.90	5.94565	5.94169	5.93773	5.93377	5.92982	5.92588	5.92194	5.91801	5.91408	5.91016	14.90
15.00	5.90624	5.90233	5.89842	5.89452	5.89062	5.88673	5.88284	5.87896	5.87509	5.87122	15.00
15.10	5.86735	5.86349	5.85963	5.85578	5.85194	5.84810	5.84426	5.84043	5.83661	5.83279	15.10
15.20	5.82897	5.82516	5.82136	5.81756	5.81376	5.80997	5.80619	5.80241	5.79864	5.79487	15.20
15.30	5.79110	5.78734	5.78358	5.77983	5.77609	5.77235	5.76861	5.76488	5.76116	5.75744	15.30
15.40	5.75372	5.75001	5.74630	5.74260	5.73890	5.73521	5.73152	5.72784	5.72416	5.72049	15.40
15.50	5.71682	5.71316	5.70950	5.70585	5.70220	5.69855	5.69491	5.69128	5.68765	5.68402	15.50
15.60	5.68040	5.67679	5.67317	5.66957	5.66596	5.66237	5.65877	5.65518	5.65160	5.64802	15.60
15.70	5.64445	5.64088	5.63731	5.63375	5.63019	5.62664	5.62309	5.61955	5.61601	5.61248	15.70
15.80	5.60895	5.60542	5.60190	5.59838	5.59487	5.59136	5.58786	5.58436	5.58087	5.57738	15.80
15.90	5.57389	5.57041	5.56694	5.56346	5.56000	5.55653	5.55307	5.54962	5.54617	5.54272	15.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
16.00	5.53928	5.53584	5.53241	5.52898	5.52556	5.52214	5.51872	5.51531	5.51190	5.50850	16.00
16.10	5.50510	5.50171	5.49832	5.49493	5.49155	5.48817	5.48480	5.48143	5.47806	5.47470	16.10
16.20	5.47134	5.46799	5.46464	5.46130	5.45796	5.45462	5.45129	5.44796	5.44464	5.44132	16.20
16.30	5.43800	5.43469	5.43138	5.42808	5.42478	5.42148	5.41819	5.41491	5.41162	5.40834	16.30
16.40	5.40507	5.40180	5.39853	5.39527	5.39201	5.38875	5.38550	5.38225	5.37901	5.37577	16.40
16.50	5.37253	5.36930	5.36607	5.36285	5.35963	5.35642	5.35320	5.35000	5.34679	5.34359	16.50
16.60	5.34039	5.33720	5.33401	5.33083	5.32765	5.32447	5.32130	5.31813	5.31496	5.31180	16.60
16.70	5.30864	5.30549	5.30234	5.29919	5.29605	5.29291	5.28977	5.28664	5.28351	5.28039	16.70
16.80	5.27727	5.27415	5.27104	5.26793	5.26482	5.26172	5.25862	5.25553	5.25244	5.24935	16.80
16.90	5.24626	5.24318	5.24011	5.23704	5.23397	5.23090	5.22784	5.22478	5.22173	5.21868	16.90
17.00	5.21563	5.21258	5.20954	5.20651	5.20348	5.20045	5.19742	5.19440	5.19138	5.18836	17.00
17.10	5.18535	5.18234	5.17934	5.17634	5.17334	5.17035	5.16736	5.16437	5.16139	5.15841	17.10
17.20	5.15543	5.15246	5.14949	5.14652	5.14356	5.14060	5.13764	5.13469	5.13174	5.12880	17.20
17.30	5.12585	5.12292	5.11998	5.11705	5.11412	5.11120	5.10827	5.10536	5.10244	5.09953	17.30
17.40	5.09662	5.09372	5.09081	5.08792	5.08502	5.08213	5.07924	5.07636	5.07347	5.07060	17.40
17.50	5.06772	5.06485	5.06198	5.05912	5.05625	5.05340	5.05054	5.04769	5.04484	5.04199	17.50
17.60	5.03915	5.03631	5.03348	5.03065	5.02782	5.02499	5.02217	5.01935	5.01653	5.01372	17.60
17.70	5.01091	5.00810	5.00530	5.00250	4.99970	4.99691	4.99411	4.99133	4.98854	4.98576	17.70
17.80	4.98298	4.98021	4.97743	4.97466	4.97190	4.96914	4.96638	4.96362	4.96087	4.95812	17.80
17.90	4.95537	4.95262	4.94988	4.94714	4.94441	4.94168	4.93895	4.93622	4.93350	4.93078	17.90
18.00	4.92806	4.92535	4.92264	4.91993	4.91723	4.91453	4.91183	4.90913	4.90644	4.90375	18.00
18.10	4.90106	4.89838	4.89570	4.89302	4.89034	4.88767	4.88500	4.88234	4.87967	4.87701	18.10
18.20	4.87436	4.87170	4.86905	4.86640	4.86376	4.86112	4.85848	4.85584	4.85321	4.85057	18.20
18.30	4.84795	4.84532	4.84270	4.84008	4.83746	4.83485	4.83224	4.82963	4.82703	4.82442	18.30
18.40	4.82182	4.81923	4.81663	4.81404	4.81145	4.80887	4.80629	4.80371	4.80113	4.79856	18.40
18.50	4.79599	4.79342	4.79085	4.78829	4.78573	4.78317	4.78062	4.77806	4.77552	4.77297	18.50
18.60	4.77043	4.76788	4.76535	4.76281	4.76028	4.75775	4.75522	4.75270	4.75018	4.74766	18.60
18.70	4.74514	4.74263	4.74012	4.73761	4.73510	4.73260	4.73010	4.72760	4.72511	4.72261	18.70
18.80	4.72013	4.71764	4.71515	4.71267	4.71019	4.70772	4.70524	4.70277	4.70030	4.69784	18.80
18.90	4.69538	4.69292	4.69046	4.68800	4.68555	4.68310	4.68065	4.67821	4.67577	4.67333	18.90
19.00	4.67089	4.66845	4.66602	4.66359	4.66117	4.65874	4.65632	4.65390	4.65148	4.64907	19.00
19.10	4.64666	4.64425	4.64184	4.63944	4.63704	4.63464	4.63224	4.62985	4.62746	4.62507	19.10
19.20	4.62268	4.62030	4.61792	4.61554	4.61316	4.61079	4.60842	4.60605	4.60368	4.60132	19.20
19.30	4.59896	4.59660	4.59424	4.59189	4.58953	4.58719	4.58484	4.58249	4.58015	4.57781	19.30
19.40	4.57548	4.57314	4.57081	4.56848	4.56615	4.56383	4.56150	4.55918	4.55687	4.55455	19.40
19.50	4.55224	4.54993	4.54762	4.54531	4.54301	4.54071	4.53841	4.53611	4.53382	4.53153	19.50
19.60	4.52924	4.52695	4.52466	4.52238	4.52010	4.51782	4.51555	4.51328	4.51100	4.50874	19.60
19.70	4.50647	4.50421	4.50194	4.49969	4.49743	4.49517	4.49292	4.49067	4.48842	4.48618	19.70
19.80	4.48394	4.48169	4.47946	4.47722	4.47499	4.47275	4.47052	4.46830	4.46607	4.46385	19.80
19.90	4.46163	4.45941	4.45719	4.45498	4.45277	4.45056	4.44835	4.44615	4.44394	4.44174	19.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
20.00	4.43955	4.43735	4.43516	4.43296	4.43077	4.42859	4.42640	4.42422	4.42204	4.41986	20.00
20.10	4.41768	4.41551	4.41334	4.41117	4.40900	4.40683	4.40467	4.40251	4.40035	4.39819	20.10
20.20	4.39604	4.39389	4.39174	4.38959	4.38744	4.38530	4.38316	4.38102	4.37888	4.37674	20.20
20.30	4.37461	4.37248	4.37035	4.36822	4.36610	4.36397	4.36185	4.35973	4.35762	4.35550	20.30
20.40	4.35339	4.35128	4.34917	4.34707	4.34496	4.34286	4.34076	4.33866	4.33657	4.33447	20.40
20.50	4.33238	4.33029	4.32820	4.32612	4.32403	4.32195	4.31987	4.31779	4.31572	4.31365	20.50
20.60	4.31157	4.30950	4.30744	4.30537	4.30331	4.30125	4.29919	4.29713	4.29508	4.29302	20.60
20.70	4.29097	4.28892	4.28687	4.28483	4.28279	4.28074	4.27870	4.27667	4.27463	4.27260	20.70
20.80	4.27057	4.26854	4.26651	4.26448	4.26246	4.26044	4.25842	4.25640	4.25438	4.25237	20.80
20.90	4.25036	4.24835	4.24634	4.24433	4.24233	4.24033	4.23833	4.23633	4.23433	4.23234	20.90
21.00	4.23034	4.22835	4.22636	4.22438	4.22239	4.22041	4.21843	4.21645	4.21447	4.21249	21.00
21.10	4.21052	4.20855	4.20658	4.20461	4.20264	4.20068	4.19872	4.19676	4.19480	4.19284	21.10
21.20	4.19089	4.18893	4.18698	4.18503	4.18308	4.18114	4.17919	4.17725	4.17531	4.17337	21.20
21.30	4.17144	4.16950	4.16757	4.16564	4.16371	4.16178	4.15985	4.15793	4.15601	4.15409	21.30
21.40	4.15217	4.15025	4.14834	4.14642	4.14451	4.14260	4.14069	4.13879	4.13688	4.13498	21.40
21.50	4.13308	4.13118	4.12929	4.12739	4.12550	4.12360	4.12171	4.11983	4.11794	4.11606	21.50
21.60	4.11417	4.11229	4.11041	4.10853	4.10666	4.10478	4.10291	4.10104	4.09917	4.09730	21.60
21.70	4.09544	4.09357	4.09171	4.08985	4.08799	4.08614	4.08428	4.08243	4.08058	4.07873	21.70
21.80	4.07688	4.07503	4.07319	4.07134	4.06950	4.06766	4.06582	4.06398	4.06215	4.06032	21.80
21.90	4.05849	4.05666	4.05483	4.05300	4.05118	4.04936	4.04753	4.04571	4.04390	4.04208	21.90
22.00	4.04027	4.03845	4.03664	4.03483	4.03302	4.03122	4.02941	4.02761	4.02581	4.02401	22.00
22.10	4.02221	4.02041	4.01862	4.01682	4.01503	4.01324	4.01145	4.00967	4.00788	4.00610	22.10
22.20	4.00432	4.00254	4.00076	3.99898	3.99721	3.99543	3.99366	3.99189	3.99012	3.98835	22.20
22.30	3.98659	3.98482	3.98306	3.98130	3.97954	3.97778	3.97602	3.97427	3.97252	3.97076	22.30
22.40	3.96901	3.96727	3.96552	3.96377	3.96203	3.96029	3.95855	3.95681	3.95507	3.95333	22.40
22.50	3.95160	3.94987	3.94814	3.94641	3.94468	3.94295	3.94123	3.93950	3.93778	3.93606	22.50
22.60	3.93434	3.93262	3.93091	3.92919	3.92748	3.92577	3.92406	3.92235	3.92064	3.91894	22.60
22.70	3.91724	3.91553	3.91383	3.91213	3.91044	3.90874	3.90704	3.90535	3.90366	3.90197	22.70
22.80	3.90028	3.89859	3.89691	3.89522	3.89354	3.89186	3.89018	3.88850	3.88682	3.88515	22.80
22.90	3.88347	3.88180	3.88013	3.87846	3.87679	3.87513	3.87346	3.87180	3.87014	3.86847	22.90
23.00	3.86682	3.86516	3.86350	3.86185	3.86019	3.85854	3.85689	3.85524	3.85359	3.85195	23.00
23.10	3.85030	3.84866	3.84702	3.84538	3.84374	3.84210	3.84046	3.83883	3.83719	3.83556	23.10
23.20	3.83393	3.83230	3.83067	3.82905	3.82742	3.82580	3.82418	3.82256	3.82094	3.81932	23.20
23.30	3.81770	3.81609	3.81447	3.81286	3.81125	3.80964	3.80803	3.80643	3.80482	3.80322	23.30
23.40	3.80161	3.80001	3.79841	3.79681	3.79522	3.79362	3.79203	3.79043	3.78884	3.78725	23.40
23.50	3.78566	3.78408	3.78249	3.78090	3.77932	3.77774	3.77616	3.77458	3.77300	3.77142	23.50
23.60	3.76985	3.76827	3.76670	3.76513	3.76356	3.76199	3.76042	3.75886	3.75729	3.75573	23.60
23.70	3.75417	3.75261	3.75105	3.74949	3.74793	3.74638	3.74482	3.74327	3.74172	3.74017	23.70
23.80	3.73862	3.73707	3.73553	3.73398	3.73244	3.73089	3.72935	3.72781	3.72628	3.72474	23.80
23.90	3.72320	3.72167	3.72014	3.71860	3.71707	3.71554	3.71402	3.71249	3.71096	3.70944	23.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
24.00	3.70792	3.70639	3.70487	3.70335	3.70184	3.70032	3.69880	3.69729	3.69578	3.69427	24.00
24.10	3.69276	3.69125	3.68974	3.68823	3.68673	3.68522	3.68372	3.68222	3.68072	3.67922	24.10
24.20	3.67772	3.67623	3.67473	3.67324	3.67174	3.67025	3.66876	3.66727	3.66579	3.66430	24.20
24.30	3.66281	3.66133	3.65985	3.65837	3.65689	3.65541	3.65393	3.65245	3.65098	3.64950	24.30
24.40	3.64803	3.64656	3.64509	3.64362	3.64215	3.64068	3.63922	3.63775	3.63629	3.63483	24.40
24.50	3.63337	3.63191	3.63045	3.62899	3.62753	3.62608	3.62462	3.62317	3.62172	3.62027	24.50
24.60	3.61882	3.61737	3.61593	3.61448	3.61304	3.61159	3.61015	3.60871	3.60727	3.60583	24.60
24.70	3.60440	3.60296	3.60153	3.60009	3.59866	3.59723	3.59580	3.59437	3.59294	3.59151	24.70
24.80	3.59009	3.58866	3.58724	3.58582	3.58440	3.58298	3.58156	3.58014	3.57873	3.57731	24.80
24.90	3.57590	3.57448	3.57307	3.57166	3.57025	3.56884	3.56744	3.56603	3.56463	3.56322	24.90
25.00	3.56182	3.56042	3.55902	3.55762	3.55622	3.55482	3.55343	3.55203	3.55064	3.54925	25.00
25.10	3.54786	3.54647	3.54508	3.54369	3.54230	3.54092	3.53953	3.53815	3.53677	3.53538	25.10
25.20	3.53400	3.53262	3.53125	3.52987	3.52849	3.52712	3.52575	3.52437	3.52300	3.52163	25.20
25.30	3.52026	3.51889	3.51753	3.51616	3.51480	3.51343	3.51207	3.51071	3.50935	3.50799	25.30
25.40	3.50663	3.50527	3.50392	3.50256	3.50121	3.49985	3.49850	3.49715	3.49580	3.49445	25.40
25.50	3.49310	3.49176	3.49041	3.48907	3.48772	3.48638	3.48504	3.48370	3.48236	3.48102	25.50
25.60	3.47969	3.47835	3.47701	3.47568	3.47435	3.47302	3.47168	3.47035	3.46903	3.46770	25.60
25.70	3.46637	3.46505	3.46372	3.46240	3.46108	3.45975	3.45843	3.45711	3.45580	3.45448	25.70
25.80	3.45316	3.45185	3.45053	3.44922	3.44791	3.44660	3.44529	3.44398	3.44267	3.44136	25.80
25.90	3.44006	3.43875	3.43745	3.43614	3.43484	3.43354	3.43224	3.43094	3.42964	3.42835	25.90
26.00	3.42705	3.42576	3.42446	3.42317	3.42188	3.42059	3.41930	3.41801	3.41672	3.41543	26.00
26.10	3.41415	3.41286	3.41158	3.41030	3.40901	3.40773	3.40645	3.40517	3.40390	3.40262	26.10
26.20	3.40134	3.40007	3.39879	3.39752	3.39625	3.39498	3.39371	3.39244	3.39117	3.38990	26.20
26.30	3.38864	3.38737	3.38611	3.38484	3.38358	3.38232	3.38106	3.37980	3.37854	3.37728	26.30
26.40	3.37603	3.37477	3.37352	3.37226	3.37101	3.36976	3.36851	3.36726	3.36601	3.36476	26.40
26.50	3.36352	3.36227	3.36102	3.35978	3.35854	3.35729	3.35605	3.35481	3.35357	3.35233	26.50
26.60	3.35110	3.34986	3.34862	3.34739	3.34616	3.34492	3.34369	3.34246	3.34123	3.34000	26.60
26.70	3.33877	3.33755	3.33632	3.33509	3.33387	3.33265	3.33142	3.33020	3.32898	3.32776	26.70
26.80	3.32654	3.32532	3.32411	3.32289	3.32167	3.32046	3.31925	3.31803	3.31682	3.31561	26.80
26.90	3.31440	3.31319	3.31198	3.31078	3.30957	3.30837	3.30716	3.30596	3.30476	3.30355	26.90
27.00	3.30235	3.30115	3.29995	3.29876	3.29756	3.29636	3.29517	3.29397	3.29278	3.29159	27.00
27.10	3.29039	3.28920	3.28801	3.28682	3.28564	3.28445	3.28326	3.28208	3.28089	3.27971	27.10
27.20	3.27852	3.27734	3.27616	3.27498	3.27380	3.27262	3.27144	3.27027	3.26909	3.26792	27.20
27.30	3.26674	3.26557	3.26440	3.26322	3.26205	3.26088	3.25971	3.25855	3.25738	3.25621	27.30
27.40	3.25505	3.25388	3.25272	3.25155	3.25039	3.24923	3.24807	3.24691	3.24575	3.24459	27.40
27.50	3.24344	3.24228	3.24112	3.23997	3.23882	3.23766	3.23651	3.23536	3.23421	3.23306	27.50
27.60	3.23191	3.23076	3.22962	3.22847	3.22733	3.22618	3.22504	3.22389	3.22275	3.22161	27.60
27.70	3.22047	3.21933	3.21819	3.21705	3.21592	3.21478	3.21365	3.21251	3.21138	3.21025	27.70
27.80	3.20911	3.20798	3.20685	3.20572	3.20459	3.20347	3.20234	3.20121	3.20009	3.19896	27.80
27.90	3.19784	3.19672	3.19559	3.19447	3.19335	3.19223	3.19111	3.18999	3.18888	3.18776	27.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
28.00	3.18664	3.18553	3.18442	3.18330	3.18219	3.18108	3.17997	3.17886	3.17775	3.17664	28.00
28.10	3.17553	3.17442	3.17332	3.17221	3.17111	3.17000	3.16890	3.16780	3.16670	3.16560	28.10
28.20	3.16450	3.16340	3.16230	3.16120	3.16011	3.15901	3.15791	3.15682	3.15573	3.15463	28.20
28.30	3.15354	3.15245	3.15136	3.15027	3.14918	3.14809	3.14701	3.14592	3.14483	3.14375	28.30
28.40	3.14267	3.14158	3.14050	3.13942	3.13834	3.13726	3.13618	3.13510	3.13402	3.13294	28.40
28.50	3.13187	3.13079	3.12971	3.12864	3.12757	3.12649	3.12542	3.12435	3.12328	3.12221	28.50
28.60	3.12114	3.12007	3.11901	3.11794	3.11687	3.11581	3.11474	3.11368	3.11262	3.11156	28.60
28.70	3.11049	3.10943	3.10837	3.10731	3.10626	3.10520	3.10414	3.10309	3.10203	3.10097	28.70
28.80	3.09992	3.09887	3.09782	3.09676	3.09571	3.09466	3.09361	3.09256	3.09152	3.09047	28.80
28.90	3.08942	3.08838	3.08733	3.08629	3.08524	3.08420	3.08316	3.08212	3.08108	3.08004	28.90
29.00	3.07900	3.07796	3.07692	3.07588	3.07485	3.07381	3.07278	3.07174	3.07071	3.06967	29.00
29.10	3.06864	3.06761	3.06658	3.06555	3.06452	3.06349	3.06246	3.06144	3.06041	3.05939	29.10
29.20	3.05836	3.05734	3.05631	3.05529	3.05427	3.05325	3.05223	3.05121	3.05019	3.04917	29.20
29.30	3.04815	3.04713	3.04612	3.04510	3.04409	3.04307	3.04206	3.04104	3.04003	3.03902	29.30
29.40	3.03801	3.03700	3.03599	3.03498	3.03397	3.03297	3.03196	3.03095	3.02995	3.02894	29.40
29.50	3.02794	3.02694	3.02593	3.02493	3.02393	3.02293	3.02193	3.02093	3.01993	3.01893	29.50
29.60	3.01794	3.01694	3.01594	3.01495	3.01395	3.01296	3.01197	3.01098	3.00998	3.00899	29.60
29.70	3.00800	3.00701	3.00602	3.00504	3.00405	3.00306	3.00207	3.00109	3.00010	2.99912	29.70
29.80	2.99814	2.99715	2.99617	2.99519	2.99421	2.99323	2.99225	2.99127	2.99029	2.98931	29.80
29.90	2.98834	2.98736	2.98638	2.98541	2.98443	2.98346	2.98249	2.98152	2.98054	2.97957	29.90
30.00	2.97860	2.97763	2.97666	2.97569	2.97473	2.97376	2.97279	2.97183	2.97086	2.96990	30.00
30.10	2.96893	2.96797	2.96701	2.96605	2.96509	2.96412	2.96316	2.96220	2.96125	2.96029	30.10
30.20	2.95933	2.95837	2.95742	2.95646	2.95551	2.95455	2.95360	2.95265	2.95169	2.95074	30.20
30.30	2.94979	2.94884	2.94789	2.94694	2.94599	2.94505	2.94410	2.94315	2.94221	2.94126	30.30
30.40	2.94032	2.93937	2.93843	2.93749	2.93654	2.93560	2.93466	2.93372	2.93278	2.93184	30.40
30.50	2.93090	2.92997	2.92903	2.92809	2.92716	2.92622	2.92529	2.92435	2.92342	2.92248	30.50
30.60	2.92155	2.92062	2.91969	2.91876	2.91783	2.91690	2.91597	2.91504	2.91412	2.91319	30.60
30.70	2.91226	2.91134	2.91041	2.90949	2.90857	2.90764	2.90672	2.90580	2.90488	2.90396	30.70
30.80	2.90304	2.90212	2.90120	2.90028	2.89936	2.89844	2.89753	2.89661	2.89570	2.89478	30.80
30.90	2.89387	2.89296	2.89204	2.89113	2.89022	2.88931	2.88840	2.88749	2.88658	2.88567	30.90
31.00	2.88476	2.88385	2.88295	2.88204	2.88114	2.88023	2.87933	2.87842	2.87752	2.87662	31.00
31.10	2.87571	2.87481	2.87391	2.87301	2.87211	2.87121	2.87031	2.86941	2.86852	2.86762	31.10
31.20	2.86672	2.86583	2.86493	2.86404	2.86314	2.86225	2.86136	2.86047	2.85957	2.85868	31.20
31.30	2.85779	2.85690	2.85601	2.85513	2.85424	2.85335	2.85246	2.85158	2.85069	2.84980	31.30
31.40	2.84892	2.84804	2.84715	2.84627	2.84539	2.84450	2.84362	2.84274	2.84186	2.84098	31.40
31.50	2.84010	2.83923	2.83835	2.83747	2.83659	2.83572	2.83484	2.83397	2.83309	2.83222	31.50
31.60	2.83134	2.83047	2.82960	2.82873	2.82786	2.82698	2.82611	2.82525	2.82438	2.82351	31.60
31.70	2.82264	2.82177	2.82091	2.82004	2.81917	2.81831	2.81744	2.81658	2.81572	2.81485	31.70
31.80	2.81399	2.81313	2.81227	2.81141	2.81055	2.80969	2.80883	2.80797	2.80711	2.80626	31.80
31.90	2.80540	2.80454	2.80369	2.80283	2.80198	2.80112	2.80027	2.79942	2.79856	2.79771	31.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
32.00	2.79686	2.79601	2.79516	2.79431	2.79346	2.79261	2.79176	2.79091	2.79007	2.78922	32.00
32.10	2.78837	2.78753	2.78668	2.78584	2.78500	2.78415	2.78331	2.78247	2.78163	2.78078	32.10
32.20	2.77994	2.77910	2.77826	2.77742	2.77659	2.77575	2.77491	2.77407	2.77324	2.77240	32.20
32.30	2.77156	2.77073	2.76990	2.76906	2.76823	2.76740	2.76656	2.76573	2.76490	2.76407	32.30
32.40	2.76324	2.76241	2.76158	2.76075	2.75992	2.75910	2.75827	2.75744	2.75662	2.75579	32.40
32.50	2.75496	2.75414	2.75332	2.75249	2.75167	2.75085	2.75002	2.74920	2.74838	2.74756	32.50
32.60	2.74674	2.74592	2.74510	2.74429	2.74347	2.74265	2.74183	2.74102	2.74020	2.73939	32.60
32.70	2.73857	2.73776	2.73694	2.73613	2.73532	2.73450	2.73369	2.73288	2.73207	2.73126	32.70
32.80	2.73045	2.72964	2.72883	2.72802	2.72721	2.72641	2.72560	2.72479	2.72399	2.72318	32.80
32.90	2.72238	2.72157	2.72077	2.71997	2.71916	2.71836	2.71756	2.71676	2.71596	2.71516	32.90
33.00	2.71436	2.71356	2.71276	2.71196	2.71116	2.71036	2.70957	2.70877	2.70798	2.70718	33.00
33.10	2.70638	2.70559	2.70480	2.70400	2.70321	2.70242	2.70162	2.70083	2.70004	2.69925	33.10
33.20	2.69846	2.69767	2.69688	2.69609	2.69531	2.69452	2.69373	2.69294	2.69216	2.69137	33.20
33.30	2.69059	2.68980	2.68902	2.68823	2.68745	2.68667	2.68588	2.68510	2.68432	2.68354	33.30
33.40	2.68276	2.68198	2.68120	2.68042	2.67964	2.67886	2.67809	2.67731	2.67653	2.67575	33.40
33.50	2.67498	2.67420	2.67343	2.67265	2.67188	2.67111	2.67033	2.66956	2.66879	2.66802	33.50
33.60	2.66725	2.66648	2.66571	2.66494	2.66417	2.66340	2.66263	2.66186	2.66109	2.66033	33.60
33.70	2.65956	2.65879	2.65803	2.65726	2.65650	2.65573	2.65497	2.65421	2.65344	2.65268	33.70
33.80	2.65192	2.65116	2.65040	2.64964	2.64888	2.64812	2.64736	2.64660	2.64584	2.64508	33.80
33.90	2.64433	2.64357	2.64281	2.64206	2.64130	2.64055	2.63979	2.63904	2.63828	2.63753	33.90
34.00	2.63678	2.63602	2.63527	2.63452	2.63377	2.63302	2.63227	2.63152	2.63077	2.63002	34.00
34.10	2.62927	2.62853	2.62778	2.62703	2.62628	2.62554	2.62479	2.62405	2.62330	2.62256	34.10
34.20	2.62181	2.62107	2.62033	2.61958	2.61884	2.61810	2.61736	2.61662	2.61588	2.61514	34.20
34.30	2.61440	2.61366	2.61292	2.61218	2.61144	2.61071	2.60997	2.60923	2.60850	2.60776	34.30
34.40	2.60703	2.60629	2.60556	2.60482	2.60409	2.60336	2.60263	2.60189	2.60116	2.60043	34.40
34.50	2.59970	2.59897	2.59824	2.59751	2.59678	2.59605	2.59532	2.59460	2.59387	2.59314	34.50
34.60	2.59241	2.59169	2.59096	2.59024	2.58951	2.58879	2.58806	2.58734	2.58662	2.58589	34.60
34.70	2.58517	2.58445	2.58373	2.58301	2.58229	2.58157	2.58085	2.58013	2.57941	2.57869	34.70
34.80	2.57797	2.57726	2.57654	2.57582	2.57510	2.57439	2.57367	2.57296	2.57224	2.57153	34.80
34.90	2.57081	2.57010	2.56939	2.56868	2.56796	2.56725	2.56654	2.56583	2.56512	2.56441	34.90
35.00	2.56370	2.56299	2.56228	2.56157	2.56086	2.56016	2.55945	2.55874	2.55804	2.55733	35.00
35.10	2.55662	2.55592	2.55521	2.55451	2.55380	2.55310	2.55240	2.55170	2.55099	2.55029	35.10
35.20	2.54959	2.54889	2.54819	2.54749	2.54679	2.54609	2.54539	2.54469	2.54399	2.54329	35.20
35.30	2.54260	2.54190	2.54120	2.54051	2.53981	2.53911	2.53842	2.53772	2.53703	2.53634	35.30
35.40	2.53564	2.53495	2.53426	2.53356	2.53287	2.53218	2.53149	2.53080	2.53011	2.52942	35.40
35.50	2.52873	2.52804	2.52735	2.52666	2.52597	2.52529	2.52460	2.52391	2.52323	2.52254	35.50
35.60	2.52185	2.52117	2.52048	2.51980	2.51912	2.51843	2.51775	2.51707	2.51638	2.51570	35.60
35.70	2.51502	2.51434	2.51366	2.51298	2.51230	2.51162	2.51094	2.51026	2.50958	2.50890	35.70
35.80	2.50822	2.50755	2.50687	2.50619	2.50552	2.50484	2.50416	2.50349	2.50281	2.50214	35.80
35.90	2.50147	2.50079	2.50012	2.49945	2.49877	2.49810	2.49743	2.49676	2.49609	2.49542	35.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
36.00	2.49475	2.49408	2.49341	2.49274	2.49207	2.49140	2.49073	2.49007	2.48940	2.48873	36.00
36.10	2.48806	2.48740	2.48673	2.48607	2.48540	2.48474	2.48407	2.48341	2.48275	2.48208	36.10
36.20	2.48142	2.48076	2.48010	2.47944	2.47877	2.47811	2.47745	2.47679	2.47613	2.47547	36.20
36.30	2.47481	2.47416	2.47350	2.47284	2.47218	2.47152	2.47087	2.47021	2.46956	2.46890	36.30
36.40	2.46824	2.46759	2.46694	2.46628	2.46563	2.46497	2.46432	2.46367	2.46302	2.46236	36.40
36.50	2.46171	2.46106	2.46041	2.45976	2.45911	2.45846	2.45781	2.45716	2.45651	2.45586	36.50
36.60	2.45522	2.45457	2.45392	2.45327	2.45263	2.45198	2.45133	2.45069	2.45004	2.44940	36.60
36.70	2.44875	2.44811	2.44747	2.44682	2.44618	2.44554	2.44490	2.44425	2.44361	2.44297	36.70
36.80	2.44233	2.44169	2.44105	2.44041	2.43977	2.43913	2.43849	2.43785	2.43722	2.43658	36.80
36.90	2.43594	2.43530	2.43467	2.43403	2.43339	2.43276	2.43212	2.43149	2.43085	2.43022	36.90
37.00	2.42959	2.42895	2.42832	2.42769	2.42705	2.42642	2.42579	2.42516	2.42453	2.42390	37.00
37.10	2.42327	2.42264	2.42201	2.42138	2.42075	2.42012	2.41949	2.41886	2.41824	2.41761	37.10
37.20	2.41698	2.41636	2.41573	2.41510	2.41448	2.41385	2.41323	2.41260	2.41198	2.41136	37.20
37.30	2.41073	2.41011	2.40949	2.40886	2.40824	2.40762	2.40700	2.40638	2.40576	2.40514	37.30
37.40	2.40452	2.40390	2.40328	2.40266	2.40204	2.40142	2.40080	2.40018	2.39957	2.39895	37.40
37.50	2.39833	2.39772	2.39710	2.39649	2.39587	2.39525	2.39464	2.39403	2.39341	2.39280	37.50
37.60	2.39218	2.39157	2.39096	2.39035	2.38973	2.38912	2.38851	2.38790	2.38729	2.38668	37.60
37.70	2.38607	2.38546	2.38485	2.38424	2.38363	2.38302	2.38242	2.38181	2.38120	2.38059	37.70
37.80	2.37999	2.37938	2.37877	2.37817	2.37756	2.37696	2.37635	2.37575	2.37514	2.37454	37.80
37.90	2.37394	2.37333	2.37273	2.37213	2.37153	2.37092	2.37032	2.36972	2.36912	2.36852	37.90
38.00	2.36792	2.36732	2.36672	2.36612	2.36552	2.36492	2.36432	2.36373	2.36313	2.36253	38.00
38.10	2.36193	2.36134	2.36074	2.36014	2.35955	2.35895	2.35836	2.35776	2.35717	2.35657	38.10
38.20	2.35598	2.35539	2.35479	2.35420	2.35361	2.35302	2.35242	2.35183	2.35124	2.35065	38.20
38.30	2.35006	2.34947	2.34888	2.34829	2.34770	2.34711	2.34652	2.34593	2.34534	2.34476	38.30
38.40	2.34417	2.34358	2.34299	2.34241	2.34182	2.34124	2.34065	2.34006	2.33948	2.33889	38.40
38.50	2.33831	2.33773	2.33714	2.33656	2.33598	2.33539	2.33481	2.33423	2.33365	2.33306	38.50
38.60	2.33248	2.33190	2.33132	2.33074	2.33016	2.32958	2.32900	2.32842	2.32784	2.32726	38.60
38.70	2.32669	2.32611	2.32553	2.32495	2.32438	2.32380	2.32322	2.32265	2.32207	2.32149	38.70
38.80	2.32092	2.32034	2.31977	2.31919	2.31862	2.31805	2.31747	2.31690	2.31633	2.31575	38.80
38.90	2.31518	2.31461	2.31404	2.31347	2.31290	2.31233	2.31176	2.31118	2.31062	2.31005	38.90
39.00	2.30948	2.30891	2.30834	2.30777	2.30720	2.30663	2.30607	2.30550	2.30493	2.30437	39.00
39.10	2.30380	2.30323	2.30267	2.30210	2.30154	2.30097	2.30041	2.29984	2.29928	2.29872	39.10
39.20	2.29815	2.29759	2.29703	2.29646	2.29590	2.29534	2.29478	2.29422	2.29366	2.29310	39.20
39.30	2.29254	2.29198	2.29142	2.29086	2.29030	2.28974	2.28918	2.28862	2.28806	2.28750	39.30
39.40	2.28695	2.28639	2.28583	2.28528	2.28472	2.28416	2.28361	2.28305	2.28250	2.28194	39.40
39.50	2.28139	2.28083	2.28028	2.27973	2.27917	2.27862	2.27807	2.27751	2.27696	2.27641	39.50
39.60	2.27586	2.27531	2.27475	2.27420	2.27365	2.27310	2.27255	2.27200	2.27145	2.27090	39.60
39.70	2.27035	2.26981	2.26926	2.26871	2.26816	2.26761	2.26707	2.26652	2.26597	2.26543	39.70
39.80	2.26488	2.26433	2.26379	2.26324	2.26270	2.26215	2.26161	2.26107	2.26052	2.25998	39.80
39.90	2.25943	2.25889	2.25835	2.25781	2.25726	2.25672	2.25618	2.25564	2.25510	2.25456	39.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
40.00	2.25402	2.25348	2.25294	2.25240	2.25186	2.25132	2.25078	2.25024	2.24970	2.24916	40.00
40.10	2.24863	2.24809	2.24755	2.24701	2.24648	2.24594	2.24540	2.24487	2.24433	2.24380	40.10
40.20	2.24326	2.24273	2.24219	2.24166	2.24113	2.24059	2.24006	2.23952	2.23899	2.23846	40.20
40.30	2.23793	2.23739	2.23686	2.23633	2.23580	2.23527	2.23474	2.23421	2.23368	2.23315	40.30
40.40	2.23262	2.23209	2.23156	2.23103	2.23050	2.22997	2.22945	2.22892	2.22839	2.22786	40.40
40.50	2.22734	2.22681	2.22628	2.22576	2.22523	2.22471	2.22418	2.22365	2.22313	2.22261	40.50
40.60	2.22208	2.22156	2.22103	2.22051	2.21999	2.21946	2.21894	2.21842	2.21790	2.21737	40.60
40.70	2.21685	2.21633	2.21581	2.21529	2.21477	2.21425	2.21373	2.21321	2.21269	2.21217	40.70
40.80	2.21165	2.21113	2.21061	2.21009	2.20958	2.20906	2.20854	2.20802	2.20751	2.20699	40.80
40.90	2.20647	2.20596	2.20544	2.20492	2.20441	2.20389	2.20338	2.20286	2.20235	2.20184	40.90
41.00	2.20132	2.20081	2.20029	2.19978	2.19927	2.19876	2.19824	2.19773	2.19722	2.19671	41.00
41.10	2.19620	2.19569	2.19517	2.19466	2.19415	2.19364	2.19313	2.19262	2.19211	2.19161	41.10
41.20	2.19110	2.19059	2.19008	2.18957	2.18906	2.18856	2.18805	2.18754	2.18703	2.18653	41.20
41.30	2.18602	2.18552	2.18501	2.18450	2.18400	2.18349	2.18299	2.18248	2.18198	2.18148	41.30
41.40	2.18097	2.18047	2.17997	2.17946	2.17896	2.17846	2.17796	2.17745	2.17695	2.17645	41.40
41.50	2.17595	2.17545	2.17495	2.17445	2.17395	2.17345	2.17295	2.17245	2.17195	2.17145	41.50
41.60	2.17095	2.17045	2.16995	2.16945	2.16896	2.16846	2.16796	2.16746	2.16697	2.16647	41.60
41.70	2.16597	2.16548	2.16498	2.16449	2.16399	2.16350	2.16300	2.16251	2.16201	2.16152	41.70
41.80	2.16102	2.16053	2.16004	2.15954	2.15905	2.15856	2.15806	2.15757	2.15708	2.15659	41.80
41.90	2.15610	2.15561	2.15511	2.15462	2.15413	2.15364	2.15315	2.15266	2.15217	2.15168	41.90
42.00	2.15119	2.15071	2.15022	2.14973	2.14924	2.14875	2.14826	2.14778	2.14729	2.14680	42.00
42.10	2.14632	2.14583	2.14534	2.14486	2.14437	2.14389	2.14340	2.14291	2.14243	2.14195	42.10
42.20	2.14146	2.14098	2.14049	2.14001	2.13953	2.13904	2.13856	2.13808	2.13759	2.13711	42.20
42.30	2.13663	2.13615	2.13567	2.13518	2.13470	2.13422	2.13374	2.13326	2.13278	2.13230	42.30
42.40	2.13182	2.13134	2.13086	2.13038	2.12990	2.12943	2.12895	2.12847	2.12799	2.12751	42.40
42.50	2.12704	2.12656	2.12608	2.12561	2.12513	2.12465	2.12418	2.12370	2.12323	2.12275	42.50
42.60	2.12227	2.12180	2.12133	2.12085	2.12038	2.11990	2.11943	2.11896	2.11848	2.11801	42.60
42.70	2.11754	2.11706	2.11659	2.11612	2.11565	2.11518	2.11470	2.11423	2.11376	2.11329	42.70
42.80	2.11282	2.11235	2.11188	2.11141	2.11094	2.11047	2.11000	2.10953	2.10906	2.10859	42.80
42.90	2.10813	2.10766	2.10719	2.10672	2.10626	2.10579	2.10532	2.10485	2.10439	2.10392	42.90
43.00	2.10346	2.10299	2.10252	2.10206	2.10159	2.10113	2.10066	2.10020	2.09973	2.09927	43.00
43.10	2.09881	2.09834	2.09788	2.09742	2.09695	2.09649	2.09603	2.09557	2.09510	2.09464	43.10
43.20	2.09418	2.09372	2.09326	2.09280	2.09234	2.09187	2.09141	2.09095	2.09049	2.09003	43.20
43.30	2.08957	2.08912	2.08866	2.08820	2.08774	2.08728	2.08682	2.08636	2.08591	2.08545	43.30
43.40	2.08499	2.08453	2.08408	2.08362	2.08316	2.08271	2.08225	2.08180	2.08134	2.08089	43.40
43.50	2.08043	2.07998	2.07952	2.07907	2.07861	2.07816	2.07770	2.07725	2.07680	2.07634	43.50
43.60	2.07589	2.07544	2.07499	2.07453	2.07408	2.07363	2.07318	2.07273	2.07227	2.07182	43.60
43.70	2.07137	2.07092	2.07047	2.07002	2.06957	2.06912	2.06867	2.06822	2.06777	2.06732	43.70
43.80	2.06687	2.06643	2.06598	2.06553	2.06508	2.06463	2.06419	2.06374	2.06329	2.06285	43.80
43.90	2.06240	2.06195	2.06151	2.06106	2.06061	2.06017	2.05972	2.05928	2.05883	2.05839	43.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
44.00	2.05794	2.05750	2.05705	2.05661	2.05617	2.05572	2.05528	2.05484	2.05439	2.05395	44.00
44.10	2.05351	2.05307	2.05262	2.05218	2.05174	2.05130	2.05086	2.05042	2.04998	2.04953	44.10
44.20	2.04909	2.04865	2.04821	2.04777	2.04733	2.04690	2.04646	2.04602	2.04558	2.04514	44.20
44.30	2.04470	2.04426	2.04382	2.04339	2.04295	2.04251	2.04207	2.04164	2.04120	2.04076	44.30
44.40	2.04033	2.03989	2.03946	2.03902	2.03858	2.03815	2.03771	2.03728	2.03684	2.03641	44.40
44.50	2.03597	2.03554	2.03511	2.03467	2.03424	2.03381	2.03337	2.03294	2.03251	2.03207	44.50
44.60	2.03164	2.03121	2.03078	2.03035	2.02991	2.02948	2.02905	2.02862	2.02819	2.02776	44.60
44.70	2.02733	2.02690	2.02647	2.02604	2.02561	2.02518	2.02475	2.02432	2.02389	2.02346	44.70
44.80	2.02304	2.02261	2.02218	2.02175	2.02132	2.02090	2.02047	2.02004	2.01962	2.01919	44.80
44.90	2.01876	2.01834	2.01791	2.01748	2.01706	2.01663	2.01621	2.01578	2.01536	2.01493	44.90
45.00	2.01451	2.01408	2.01366	2.01324	2.01281	2.01239	2.01197	2.01154	2.01112	2.01070	45.00
45.10	2.01027	2.00985	2.00943	2.00901	2.00859	2.00816	2.00774	2.00732	2.00690	2.00648	45.10
45.20	2.00606	2.00564	2.00522	2.00480	2.00438	2.00396	2.00354	2.00312	2.00270	2.00228	45.20
45.30	2.00186	2.00144	2.00103	2.00061	2.00019	1.99977	1.99935	1.99894	1.99852	1.99810	45.30
45.40	1.99769	1.99727	1.99685	1.99644	1.99602	1.99560	1.99519	1.99477	1.99436	1.99394	45.40
45.50	1.99353	1.99311	1.99270	1.99228	1.99187	1.99146	1.99104	1.99063	1.99021	1.98980	45.50
45.60	1.98939	1.98898	1.98856	1.98815	1.98774	1.98733	1.98691	1.98650	1.98609	1.98568	45.60
45.70	1.98527	1.98486	1.98445	1.98404	1.98362	1.98321	1.98280	1.98239	1.98198	1.98158	45.70
45.80	1.98117	1.98076	1.98035	1.97994	1.97953	1.97912	1.97871	1.97831	1.97790	1.97749	45.80
45.90	1.97708	1.97667	1.97627	1.97586	1.97545	1.97505	1.97464	1.97423	1.97383	1.97342	45.90
46.00	1.97302	1.97261	1.97221	1.97180	1.97140	1.97099	1.97059	1.97018	1.96978	1.96937	46.00
46.10	1.96897	1.96857	1.96816	1.96776	1.96736	1.96695	1.96655	1.96615	1.96574	1.96534	46.10
46.20	1.96494	1.96454	1.96414	1.96374	1.96333	1.96293	1.96253	1.96213	1.96173	1.96133	46.20
46.30	1.96093	1.96053	1.96013	1.95973	1.95933	1.95893	1.95853	1.95813	1.95773	1.95733	46.30
46.40	1.95694	1.95654	1.95614	1.95574	1.95534	1.95495	1.95455	1.95415	1.95375	1.95336	46.40
46.50	1.95296	1.95256	1.95217	1.95177	1.95137	1.95098	1.95058	1.95019	1.94979	1.94940	46.50
46.60	1.94900	1.94861	1.94821	1.94782	1.94742	1.94703	1.94664	1.94624	1.94585	1.94545	46.60
46.70	1.94506	1.94467	1.94428	1.94388	1.94349	1.94310	1.94271	1.94231	1.94192	1.94153	46.70
46.80	1.94114	1.94075	1.94036	1.93996	1.93957	1.93918	1.93879	1.93840	1.93801	1.93762	46.80
46.90	1.93723	1.93684	1.93645	1.93606	1.93567	1.93529	1.93490	1.93451	1.93412	1.93373	46.90
47.00	1.93334	1.93296	1.93257	1.93218	1.93179	1.93141	1.93102	1.93063	1.93024	1.92986	47.00
47.10	1.92947	1.92909	1.92870	1.92831	1.92793	1.92754	1.92716	1.92677	1.92639	1.92600	47.10
47.20	1.92562	1.92523	1.92485	1.92446	1.92408	1.92370	1.92331	1.92293	1.92255	1.92216	47.20
47.30	1.92178	1.92140	1.92101	1.92063	1.92025	1.91987	1.91948	1.91910	1.91872	1.91834	47.30
47.40	1.91796	1.91758	1.91720	1.91682	1.91643	1.91605	1.91567	1.91529	1.91491	1.91453	47.40
47.50	1.91415	1.91377	1.91339	1.91302	1.91264	1.91226	1.91188	1.91150	1.91112	1.91074	47.50
47.60	1.91037	1.90999	1.90961	1.90923	1.90885	1.90848	1.90810	1.90772	1.90735	1.90697	47.60
47.70	1.90659	1.90622	1.90584	1.90547	1.90509	1.90471	1.90434	1.90396	1.90359	1.90321	47.70
47.80	1.90284	1.90246	1.90209	1.90172	1.90134	1.90097	1.90059	1.90022	1.89985	1.89947	47.80
47.90	1.89910	1.89873	1.89835	1.89798	1.89761	1.89724	1.89686	1.89649	1.89612	1.89575	47.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
48.00	1.89538	1.89500	1.89463	1.89426	1.89389	1.89352	1.89315	1.89278	1.89241	1.89204	48.00
48.10	1.89167	1.89130	1.89093	1.89056	1.89019	1.88982	1.88945	1.88908	1.88872	1.88835	48.10
48.20	1.88798	1.88761	1.88724	1.88687	1.88651	1.88614	1.88577	1.88540	1.88504	1.88467	48.20
48.30	1.88430	1.88394	1.88357	1.88320	1.88284	1.88247	1.88211	1.88174	1.88137	1.88101	48.30
48.40	1.88064	1.88028	1.87991	1.87955	1.87918	1.87882	1.87846	1.87809	1.87773	1.87736	48.40
48.50	1.87700	1.87664	1.87627	1.87591	1.87555	1.87518	1.87482	1.87446	1.87410	1.87373	48.50
48.60	1.87337	1.87301	1.87265	1.87229	1.87192	1.87156	1.87120	1.87084	1.87048	1.87012	48.60
48.70	1.86976	1.86940	1.86904	1.86868	1.86832	1.86796	1.86760	1.86724	1.86688	1.86652	48.70
48.80	1.86616	1.86580	1.86544	1.86508	1.86473	1.86437	1.86401	1.86365	1.86329	1.86294	48.80
48.90	1.86258	1.86222	1.86186	1.86151	1.86115	1.86079	1.86044	1.86008	1.85972	1.85937	48.90
49.00	1.85901	1.85865	1.85830	1.85794	1.85759	1.85723	1.85688	1.85652	1.85617	1.85581	49.00
49.10	1.85546	1.85510	1.85475	1.85440	1.85404	1.85369	1.85333	1.85298	1.85263	1.85227	49.10
49.20	1.85192	1.85157	1.85121	1.85086	1.85051	1.85016	1.84981	1.84945	1.84910	1.84875	49.20
49.30	1.84840	1.84805	1.84770	1.84734	1.84699	1.84664	1.84629	1.84594	1.84559	1.84524	49.30
49.40	1.84489	1.84454	1.84419	1.84384	1.84349	1.84314	1.84279	1.84244	1.84209	1.84175	49.40
49.50	1.84140	1.84105	1.84070	1.84035	1.84000	1.83966	1.83931	1.83896	1.83861	1.83827	49.50
49.60	1.83792	1.83757	1.83723	1.83688	1.83653	1.83619	1.83584	1.83549	1.83515	1.83480	49.60
49.70	1.83446	1.83411	1.83376	1.83342	1.83307	1.83273	1.83238	1.83204	1.83169	1.83135	49.70
49.80	1.83101	1.83066	1.83032	1.82997	1.82963	1.82929	1.82894	1.82860	1.82826	1.82791	49.80
49.90	1.82757	1.82723	1.82689	1.82654	1.82620	1.82586	1.82552	1.82517	1.82483	1.82449	49.90
50.00	1.82415	1.82381	1.82347	1.82313	1.82279	1.82244	1.82210	1.82176	1.82142	1.82108	50.00
50.10	1.82074	1.82040	1.82006	1.81972	1.81938	1.81904	1.81871	1.81837	1.81803	1.81769	50.10
50.20	1.81735	1.81701	1.81667	1.81634	1.81600	1.81566	1.81532	1.81498	1.81465	1.81431	50.20
50.30	1.81397	1.81363	1.81330	1.81296	1.81262	1.81229	1.81195	1.81162	1.81128	1.81094	50.30
50.40	1.81061	1.81027	1.80994	1.80960	1.80927	1.80893	1.80859	1.80826	1.80793	1.80759	50.40
50.50	1.80726	1.80692	1.80659	1.80625	1.80592	1.80559	1.80525	1.80492	1.80459	1.80425	50.50
50.60	1.80392	1.80359	1.80325	1.80292	1.80259	1.80226	1.80192	1.80159	1.80126	1.80093	50.60
50.70	1.80060	1.80026	1.79993	1.79960	1.79927	1.79894	1.79861	1.79828	1.79795	1.79762	50.70
50.80	1.79729	1.79696	1.79663	1.79630	1.79597	1.79564	1.79531	1.79498	1.79465	1.79432	50.80
50.90	1.79399	1.79366	1.79333	1.79300	1.79267	1.79235	1.79202	1.79169	1.79136	1.79103	50.90
51.00	1.79071	1.79038	1.79005	1.78972	1.78940	1.78907	1.78874	1.78842	1.78809	1.78776	51.00
51.10	1.78744	1.78711	1.78678	1.78646	1.78613	1.78581	1.78548	1.78516	1.78483	1.78451	51.10
51.20	1.78418	1.78386	1.78353	1.78321	1.78288	1.78256	1.78223	1.78191	1.78159	1.78126	51.20
51.30	1.78094	1.78061	1.78029	1.77997	1.77964	1.77932	1.77900	1.77868	1.77835	1.77803	51.30
51.40	1.77771	1.77739	1.77706	1.77674	1.77642	1.77610	1.77578	1.77545	1.77513	1.77481	51.40
51.50	1.77449	1.77417	1.77385	1.77353	1.77321	1.77289	1.77257	1.77225	1.77193	1.77161	51.50
51.60	1.77129	1.77097	1.77065	1.77033	1.77001	1.76969	1.76937	1.76905	1.76873	1.76841	51.60
51.70	1.76810	1.76778	1.76746	1.76714	1.76682	1.76650	1.76619	1.76587	1.76555	1.76523	51.70
51.80	1.76492	1.76460	1.76428	1.76397	1.76365	1.76333	1.76302	1.76270	1.76238	1.76207	51.80
51.90	1.76175	1.76144	1.76112	1.76080	1.76049	1.76017	1.75986	1.75954	1.75923	1.75891	51.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
52.00	1.75860	1.75828	1.75797	1.75766	1.75734	1.75703	1.75671	1.75640	1.75609	1.75577	52.00
52.10	1.75546	1.75515	1.75483	1.75452	1.75421	1.75389	1.75358	1.75327	1.75296	1.75264	52.10
52.20	1.75233	1.75202	1.75171	1.75140	1.75108	1.75077	1.75046	1.75015	1.74984	1.74953	52.20
52.30	1.74922	1.74890	1.74859	1.74828	1.74797	1.74766	1.74735	1.74704	1.74673	1.74642	52.30
52.40	1.74611	1.74580	1.74549	1.74518	1.74488	1.74457	1.74426	1.74395	1.74364	1.74333	52.40
52.50	1.74302	1.74271	1.74241	1.74210	1.74179	1.74148	1.74117	1.74087	1.74056	1.74025	52.50
52.60	1.73994	1.73964	1.73933	1.73902	1.73872	1.73841	1.73810	1.73780	1.73749	1.73718	52.60
52.70	1.73688	1.73657	1.73627	1.73596	1.73565	1.73535	1.73504	1.73474	1.73443	1.73413	52.70
52.80	1.73382	1.73352	1.73321	1.73291	1.73261	1.73230	1.73200	1.73169	1.73139	1.73109	52.80
52.90	1.73078	1.73048	1.73017	1.72987	1.72957	1.72927	1.72896	1.72866	1.72836	1.72805	52.90
53.00	1.72775	1.72745	1.72715	1.72684	1.72654	1.72624	1.72594	1.72564	1.72534	1.72503	53.00
53.10	1.72473	1.72443	1.72413	1.72383	1.72353	1.72323	1.72293	1.72263	1.72233	1.72203	53.10
53.20	1.72173	1.72143	1.72113	1.72083	1.72053	1.72023	1.71993	1.71963	1.71933	1.71903	53.20
53.30	1.71873	1.71843	1.71814	1.71784	1.71754	1.71724	1.71694	1.71664	1.71635	1.71605	53.30
53.40	1.71575	1.71545	1.71515	1.71486	1.71456	1.71426	1.71397	1.71367	1.71337	1.71308	53.40
53.50	1.71278	1.71248	1.71219	1.71189	1.71159	1.71130	1.71100	1.71071	1.71041	1.71011	53.50
53.60	1.70982	1.70952	1.70923	1.70893	1.70864	1.70834	1.70805	1.70775	1.70746	1.70717	53.60
53.70	1.70687	1.70658	1.70628	1.70599	1.70569	1.70540	1.70511	1.70481	1.70452	1.70423	53.70
53.80	1.70393	1.70364	1.70335	1.70306	1.70276	1.70247	1.70218	1.70189	1.70159	1.70130	53.80
53.90	1.70101	1.70072	1.70043	1.70013	1.69984	1.69955	1.69926	1.69897	1.69868	1.69839	53.90
54.00	1.69810	1.69780	1.69751	1.69722	1.69693	1.69664	1.69635	1.69606	1.69577	1.69548	54.00
54.10	1.69519	1.69490	1.69461	1.69432	1.69403	1.69375	1.69346	1.69317	1.69288	1.69259	54.10
54.20	1.69230	1.69201	1.69172	1.69144	1.69115	1.69086	1.69057	1.69028	1.69000	1.68971	54.20
54.30	1.68942	1.68913	1.68885	1.68856	1.68827	1.68798	1.68770	1.68741	1.68712	1.68684	54.30
54.40	1.68655	1.68626	1.68598	1.68569	1.68541	1.68512	1.68483	1.68455	1.68426	1.68398	54.40
54.50	1.68369	1.68341	1.68312	1.68284	1.68255	1.68227	1.68198	1.68170	1.68141	1.68113	54.50
54.60	1.68085	1.68056	1.68028	1.67999	1.67971	1.67943	1.67914	1.67886	1.67858	1.67829	54.60
54.70	1.67801	1.67773	1.67744	1.67716	1.67688	1.67659	1.67631	1.67603	1.67575	1.67547	54.70
54.80	1.67518	1.67490	1.67462	1.67434	1.67406	1.67377	1.67349	1.67321	1.67293	1.67265	54.80
54.90	1.67237	1.67209	1.67181	1.67153	1.67125	1.67097	1.67068	1.67040	1.67012	1.66984	54.90
55.00	1.66956	1.66928	1.66900	1.66873	1.66845	1.66817	1.66789	1.66761	1.66733	1.66705	55.00
55.10	1.66677	1.66649	1.66621	1.66593	1.66566	1.66538	1.66510	1.66482	1.66454	1.66427	55.10
55.20	1.66399	1.66371	1.66343	1.66316	1.66288	1.66260	1.66232	1.66205	1.66177	1.66149	55.20
55.30	1.66122	1.66094	1.66066	1.66039	1.66011	1.65983	1.65956	1.65928	1.65901	1.65873	55.30
55.40	1.65845	1.65818	1.65790	1.65763	1.65735	1.65708	1.65680	1.65653	1.65625	1.65598	55.40
55.50	1.65570	1.65543	1.65515	1.65488	1.65460	1.65433	1.65406	1.65378	1.65351	1.65323	55.50
55.60	1.65296	1.65269	1.65241	1.65214	1.65187	1.65159	1.65132	1.65105	1.65078	1.65050	55.60
55.70	1.65023	1.64996	1.64969	1.64941	1.64914	1.64887	1.64860	1.64832	1.64805	1.64778	55.70
55.80	1.64751	1.64724	1.64697	1.64670	1.64642	1.64615	1.64588	1.64561	1.64534	1.64507	55.80
55.90	1.64480	1.64453	1.64426	1.64399	1.64372	1.64345	1.64318	1.64291	1.64264	1.64237	55.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Thuta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
56.00	1.64210	1.64183	1.64156	1.64129	1.64102	1.64075	1.64048	1.64022	1.63995	1.63968	56.00
56.10	1.63941	1.63914	1.63887	1.63860	1.63834	1.63807	1.63780	1.63753	1.63726	1.63700	56.10
56.20	1.63673	1.63646	1.63619	1.63593	1.63566	1.63539	1.63513	1.63486	1.63459	1.63433	56.20
56.30	1.63406	1.63379	1.63353	1.63326	1.63299	1.63273	1.63246	1.63220	1.63193	1.63166	56.30
56.40	1.63140	1.63113	1.63087	1.63060	1.63034	1.63007	1.62981	1.62954	1.62928	1.62901	56.40
56.50	1.62875	1.62848	1.62822	1.62796	1.62769	1.62743	1.62716	1.62690	1.62664	1.62637	56.50
56.60	1.62611	1.62585	1.62558	1.62532	1.62506	1.62479	1.62453	1.62427	1.62400	1.62374	56.60
56.70	1.62348	1.62322	1.62295	1.62269	1.62243	1.62217	1.62190	1.62164	1.62138	1.62112	56.70
56.80	1.62086	1.62060	1.62033	1.62007	1.61981	1.61955	1.61929	1.61903	1.61877	1.61851	56.80
56.90	1.61825	1.61799	1.61773	1.61746	1.61720	1.61694	1.61668	1.61642	1.61616	1.61590	56.90
57.00	1.61564	1.61539	1.61513	1.61487	1.61461	1.61435	1.61409	1.61383	1.61357	1.61331	57.00
57.10	1.61305	1.61279	1.61254	1.61228	1.61202	1.61176	1.61150	1.61124	1.61099	1.61073	57.10
57.20	1.61047	1.61021	1.60995	1.60970	1.60944	1.60918	1.60893	1.60867	1.60841	1.60815	57.20
57.30	1.60790	1.60764	1.60738	1.60713	1.60687	1.60661	1.60636	1.60610	1.60585	1.60559	57.30
57.40	1.60533	1.60508	1.60482	1.60457	1.60431	1.60406	1.60380	1.60354	1.60329	1.60303	57.40
57.50	1.60278	1.60252	1.60227	1.60202	1.60176	1.60151	1.60125	1.60100	1.60074	1.60049	57.50
57.60	1.60023	1.59998	1.59973	1.59947	1.59922	1.59897	1.59871	1.59846	1.59821	1.59795	57.60
57.70	1.59770	1.59745	1.59719	1.59694	1.59669	1.59643	1.59618	1.59593	1.59568	1.59543	57.70
57.80	1.59517	1.59492	1.59467	1.59442	1.59417	1.59391	1.59366	1.59341	1.59316	1.59291	57.80
57.90	1.59266	1.59240	1.59215	1.59190	1.59165	1.59140	1.59115	1.59090	1.59065	1.59040	57.90
58.00	1.59015	1.58990	1.58965	1.58940	1.58915	1.58890	1.58865	1.58840	1.58815	1.58790	58.00
58.10	1.58765	1.58740	1.58715	1.58690	1.58665	1.58640	1.58615	1.58591	1.58566	1.58541	58.10
58.20	1.58516	1.58491	1.58466	1.58441	1.58417	1.58392	1.58367	1.58342	1.58317	1.58293	58.20
58.30	1.58268	1.58243	1.58218	1.58194	1.58169	1.58144	1.58119	1.58095	1.58070	1.58045	58.30
58.40	1.58021	1.57996	1.57971	1.57947	1.57922	1.57897	1.57873	1.57848	1.57824	1.57799	58.40
58.50	1.57774	1.57750	1.57725	1.57701	1.57676	1.57652	1.57627	1.57602	1.57578	1.57553	58.50
58.60	1.57529	1.57504	1.57480	1.57455	1.57431	1.57407	1.57382	1.57358	1.57333	1.57309	58.60
58.70	1.57284	1.57260	1.57236	1.57211	1.57187	1.57162	1.57138	1.57114	1.57089	1.57065	58.70
58.80	1.57041	1.57016	1.56992	1.56968	1.56944	1.56919	1.56895	1.56871	1.56846	1.56822	58.80
58.90	1.56798	1.56774	1.56750	1.56725	1.56701	1.56677	1.56653	1.56629	1.56604	1.56580	58.90
59.00	1.56556	1.56532	1.56508	1.56484	1.56460	1.56435	1.56411	1.56387	1.56363	1.56339	59.00
59.10	1.56315	1.56291	1.56267	1.56243	1.56219	1.56195	1.56171	1.56147	1.56123	1.56099	59.10
59.20	1.56075	1.56051	1.56027	1.56003	1.55979	1.55955	1.55931	1.55907	1.55883	1.55859	59.20
59.30	1.55836	1.55812	1.55788	1.55764	1.55740	1.55716	1.55692	1.55668	1.55645	1.55621	59.30
59.40	1.55597	1.55573	1.55549	1.55526	1.55502	1.55478	1.55454	1.55431	1.55407	1.55383	59.40
59.50	1.55359	1.55336	1.55312	1.55288	1.55265	1.55241	1.55217	1.55194	1.55170	1.55146	59.50
59.60	1.55123	1.55099	1.55075	1.55052	1.55028	1.55005	1.54981	1.54957	1.54934	1.54910	59.60
59.70	1.54887	1.54863	1.54840	1.54816	1.54793	1.54769	1.54745	1.54722	1.54699	1.54675	59.70
59.80	1.54652	1.54628	1.54605	1.54581	1.54558	1.54534	1.54511	1.54487	1.54464	1.54441	59.80
59.90	1.54417	1.54394	1.54371	1.54347	1.54324	1.54300	1.54277	1.54254	1.54230	1.54207	59.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
60.00	1.54184	1.54160	1.54137	1.54114	1.54091	1.54067	1.54044	1.54021	1.53998	1.53974	60.00
60.10	1.53951	1.53928	1.53905	1.53882	1.53858	1.53835	1.53812	1.53789	1.53766	1.53742	60.10
60.20	1.53719	1.53696	1.53673	1.53650	1.53627	1.53604	1.53581	1.53558	1.53534	1.53511	60.20
60.30	1.53488	1.53465	1.53442	1.53419	1.53396	1.53373	1.53350	1.53327	1.53304	1.53281	60.30
60.40	1.53258	1.53235	1.53212	1.53189	1.53166	1.53143	1.53120	1.53097	1.53075	1.53052	60.40
60.50	1.53029	1.53006	1.52983	1.52960	1.52937	1.52914	1.52891	1.52869	1.52846	1.52823	60.50
60.60	1.52800	1.52777	1.52755	1.52732	1.52709	1.52686	1.52663	1.52641	1.52618	1.52595	60.60
60.70	1.52572	1.52550	1.52527	1.52504	1.52481	1.52459	1.52436	1.52413	1.52391	1.52368	60.70
60.80	1.52345	1.52323	1.52300	1.52277	1.52255	1.52232	1.52210	1.52187	1.52164	1.52142	60.80
60.90	1.52119	1.52097	1.52074	1.52051	1.52029	1.52006	1.51984	1.51961	1.51939	1.51916	60.90
61.00	1.51894	1.51871	1.51849	1.51826	1.51804	1.51781	1.51759	1.51736	1.51714	1.51692	61.00
61.10	1.51669	1.51647	1.51624	1.51602	1.51579	1.51557	1.51535	1.51512	1.51490	1.51468	61.10
61.20	1.51445	1.51423	1.51401	1.51378	1.51356	1.51334	1.51311	1.51289	1.51267	1.51244	61.20
61.30	1.51222	1.51200	1.51178	1.51155	1.51133	1.51111	1.51089	1.51066	1.51044	1.51022	61.30
61.40	1.51000	1.50978	1.50955	1.50933	1.50911	1.50889	1.50867	1.50845	1.50823	1.50800	61.40
61.50	1.50778	1.50756	1.50734	1.50712	1.50690	1.50668	1.50646	1.50624	1.50602	1.50580	61.50
61.60	1.50558	1.50535	1.50513	1.50491	1.50469	1.50447	1.50425	1.50403	1.50381	1.50359	61.60
61.70	1.50337	1.50316	1.50294	1.50272	1.50250	1.50228	1.50206	1.50184	1.50162	1.50140	61.70
61.80	1.50118	1.50096	1.50074	1.50053	1.50031	1.50009	1.49987	1.49965	1.49943	1.49922	61.80
61.90	1.49900	1.49878	1.49856	1.49834	1.49813	1.49791	1.49769	1.49747	1.49725	1.49704	61.90
62.00	1.49682	1.49660	1.49638	1.49617	1.49595	1.49573	1.49552	1.49530	1.49508	1.49487	62.00
62.10	1.49465	1.49443	1.49422	1.49400	1.49378	1.49357	1.49335	1.49313	1.49292	1.49270	62.10
62.20	1.49249	1.49227	1.49205	1.49184	1.49162	1.49141	1.49119	1.49098	1.49076	1.49055	62.20
62.30	1.49033	1.49012	1.48990	1.48969	1.48947	1.48926	1.48904	1.48883	1.48861	1.48840	62.30
62.40	1.48818	1.48797	1.48775	1.48754	1.48733	1.48711	1.48690	1.48668	1.48647	1.48626	62.40
62.50	1.48604	1.48583	1.48562	1.48540	1.48519	1.48497	1.48476	1.48455	1.48433	1.48412	62.50
62.60	1.48391	1.48370	1.48348	1.48327	1.48306	1.48284	1.48263	1.48242	1.48221	1.48199	62.60
62.70	1.48178	1.48157	1.48136	1.48115	1.48093	1.48072	1.48051	1.48030	1.48009	1.47988	62.70
62.80	1.47966	1.47945	1.47924	1.47903	1.47882	1.47861	1.47840	1.47818	1.47797	1.47776	62.80
62.90	1.47755	1.47734	1.47713	1.47692	1.47671	1.47650	1.47629	1.47608	1.47587	1.47566	62.90
63.00	1.47545	1.47524	1.47503	1.47482	1.47461	1.47440	1.47419	1.47398	1.47377	1.47356	63.00
63.10	1.47335	1.47314	1.47293	1.47272	1.47251	1.47230	1.47209	1.47189	1.47168	1.47147	63.10
63.20	1.47126	1.47105	1.47084	1.47063	1.47042	1.47022	1.47001	1.46980	1.46959	1.46938	63.20
63.30	1.46918	1.46897	1.46876	1.46855	1.46834	1.46814	1.46793	1.46772	1.46751	1.46731	63.30
63.40	1.46710	1.46689	1.46668	1.46648	1.46627	1.46606	1.46586	1.46565	1.46544	1.46524	63.40
63.50	1.46503	1.46482	1.46462	1.46441	1.46420	1.46400	1.46379	1.46359	1.46338	1.46317	63.50
63.60	1.46297	1.46276	1.46256	1.46235	1.46214	1.46194	1.46173	1.46153	1.46132	1.46112	63.60
63.70	1.46091	1.46071	1.46050	1.46030	1.46009	1.45989	1.45968	1.45948	1.45927	1.45907	63.70
63.80	1.45886	1.45866	1.45845	1.45825	1.45805	1.45784	1.45764	1.45743	1.45723	1.45702	63.80
63.90	1.45682	1.45662	1.45641	1.45621	1.45601	1.45580	1.45560	1.45540	1.45519	1.45499	63.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
64.00	1.45479	1.45458	1.45438	1.45418	1.45397	1.45377	1.45357	1.45337	1.45316	1.45296	64.00
64.10	1.45276	1.45255	1.45235	1.45215	1.45195	1.45175	1.45154	1.45134	1.45114	1.45094	64.10
64.20	1.45074	1.45053	1.45033	1.45013	1.44993	1.44973	1.44953	1.44932	1.44912	1.44892	64.20
64.30	1.44872	1.44852	1.44832	1.44812	1.44792	1.44772	1.44752	1.44731	1.44711	1.44691	64.30
64.40	1.44671	1.44651	1.44631	1.44611	1.44591	1.44571	1.44551	1.44531	1.44511	1.44491	64.40
64.50	1.44471	1.44451	1.44431	1.44411	1.44391	1.44371	1.44351	1.44331	1.44312	1.44292	64.50
64.60	1.44272	1.44252	1.44232	1.44212	1.44192	1.44172	1.44152	1.44132	1.44113	1.44093	64.60
64.70	1.44073	1.44053	1.44033	1.44013	1.43993	1.43974	1.43954	1.43934	1.43914	1.43894	64.70
64.80	1.43875	1.43855	1.43835	1.43815	1.43796	1.43776	1.43756	1.43736	1.43717	1.43697	64.80
64.90	1.43677	1.43657	1.43638	1.43618	1.43598	1.43579	1.43559	1.43539	1.43520	1.43500	64.90
65.00	1.43480	1.43461	1.43441	1.43421	1.43402	1.43382	1.43362	1.43343	1.43323	1.43304	65.00
65.10	1.43284	1.43264	1.43245	1.43225	1.43206	1.43186	1.43167	1.43147	1.43128	1.43108	65.10
65.20	1.43088	1.43069	1.43049	1.43030	1.43010	1.42991	1.42971	1.42952	1.42932	1.42913	65.20
65.30	1.42894	1.42874	1.42855	1.42835	1.42816	1.42796	1.42777	1.42757	1.42738	1.42719	65.30
65.40	1.42699	1.42680	1.42660	1.42641	1.42622	1.42602	1.42583	1.42564	1.42544	1.42525	65.40
65.50	1.42506	1.42486	1.42467	1.42448	1.42428	1.42409	1.42390	1.42370	1.42351	1.42332	65.50
65.60	1.42313	1.42293	1.42274	1.42255	1.42236	1.42216	1.42197	1.42178	1.42159	1.42139	65.60
65.70	1.42120	1.42101	1.42082	1.42063	1.42043	1.42024	1.42005	1.41986	1.41967	1.41948	65.70
65.80	1.41928	1.41909	1.41890	1.41871	1.41852	1.41833	1.41814	1.41795	1.41775	1.41756	65.80
65.90	1.41737	1.41718	1.41699	1.41680	1.41661	1.41642	1.41623	1.41604	1.41585	1.41566	65.90
66.00	1.41547	1.41528	1.41509	1.41490	1.41471	1.41452	1.41433	1.41414	1.41395	1.41376	66.00
66.10	1.41357	1.41338	1.41319	1.41300	1.41281	1.41262	1.41243	1.41224	1.41205	1.41186	66.10
66.20	1.41168	1.41149	1.41130	1.41111	1.41092	1.41073	1.41054	1.41035	1.41017	1.40998	66.20
66.30	1.40979	1.40960	1.40941	1.40922	1.40904	1.40885	1.40866	1.40847	1.40828	1.40810	66.30
66.40	1.40791	1.40772	1.40753	1.40735	1.40716	1.40697	1.40678	1.40660	1.40641	1.40622	66.40
66.50	1.40603	1.40585	1.40566	1.40547	1.40529	1.40510	1.40491	1.40473	1.40454	1.40435	66.50
66.60	1.40417	1.40398	1.40379	1.40361	1.40342	1.40323	1.40305	1.40286	1.40268	1.40249	66.60
66.70	1.40230	1.40212	1.40193	1.40175	1.40156	1.40137	1.40119	1.40100	1.40082	1.40063	66.70
66.80	1.40045	1.40026	1.40008	1.39989	1.39971	1.39952	1.39934	1.39915	1.39897	1.39878	66.80
66.90	1.39860	1.39841	1.39823	1.39804	1.39786	1.39767	1.39749	1.39730	1.39712	1.39694	66.90
67.00	1.39675	1.39657	1.39638	1.39620	1.39602	1.39583	1.39565	1.39546	1.39528	1.39510	67.00
67.10	1.39491	1.39473	1.39455	1.39436	1.39418	1.39400	1.39381	1.39363	1.39345	1.39326	67.10
67.20	1.39308	1.39290	1.39271	1.39253	1.39235	1.39217	1.39198	1.39180	1.39162	1.39144	67.20
67.30	1.39125	1.39107	1.39089	1.39071	1.39052	1.39034	1.39016	1.38998	1.38980	1.38961	67.30
67.40	1.38943	1.38925	1.38907	1.38889	1.38871	1.38852	1.38834	1.38816	1.38798	1.38780	67.40
67.50	1.38762	1.38744	1.38726	1.38707	1.38689	1.38671	1.38653	1.38635	1.38617	1.38599	67.50
67.60	1.38581	1.38563	1.38545	1.38527	1.38509	1.38491	1.38473	1.38455	1.38436	1.38418	67.60
67.70	1.38400	1.38382	1.38364	1.38346	1.38328	1.38310	1.38293	1.38275	1.38257	1.38239	67.70
67.80	1.38221	1.38203	1.38185	1.38167	1.38149	1.38131	1.38113	1.38095	1.38077	1.38059	67.80
67.90	1.38041	1.38024	1.38006	1.37988	1.37970	1.37952	1.37934	1.37916	1.37898	1.37881	67.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
68.00	1.37863	1.37845	1.37827	1.37809	1.37792	1.37774	1.37756	1.37738	1.37720	1.37703	68.00
68.10	1.37685	1.37667	1.37649	1.37631	1.37614	1.37596	1.37578	1.37560	1.37543	1.37525	68.10
68.20	1.37507	1.37489	1.37472	1.37454	1.37436	1.37419	1.37401	1.37383	1.37366	1.37348	68.20
68.30	1.37330	1.37313	1.37295	1.37277	1.37260	1.37242	1.37224	1.37207	1.37189	1.37171	68.30
68.40	1.37154	1.37136	1.37119	1.37101	1.37083	1.37066	1.37048	1.37031	1.37013	1.36996	68.40
68.50	1.36978	1.36960	1.36943	1.36925	1.36908	1.36890	1.36873	1.36855	1.36838	1.36820	68.50
68.60	1.36803	1.36785	1.36768	1.36750	1.36733	1.36715	1.36698	1.36680	1.36663	1.36645	68.60
68.70	1.36628	1.36611	1.36593	1.36576	1.36558	1.36541	1.36523	1.36506	1.36489	1.36471	68.70
68.80	1.36454	1.36436	1.36419	1.36402	1.36384	1.36367	1.36350	1.36332	1.36315	1.36298	68.80
68.90	1.36280	1.36263	1.36246	1.36228	1.36211	1.36194	1.36176	1.36159	1.36142	1.36124	68.90
69.00	1.36107	1.36090	1.36073	1.36055	1.36038	1.36021	1.36003	1.35986	1.35969	1.35952	69.00
69.10	1.35935	1.35917	1.35900	1.35883	1.35866	1.35848	1.35831	1.35814	1.35797	1.35780	69.10
69.20	1.35763	1.35745	1.35728	1.35711	1.35694	1.35677	1.35660	1.35642	1.35625	1.35608	69.20
69.30	1.35591	1.35574	1.35557	1.35540	1.35523	1.35506	1.35488	1.35471	1.35454	1.35437	69.30
69.40	1.35420	1.35403	1.35386	1.35369	1.35352	1.35335	1.35318	1.35301	1.35284	1.35267	69.40
69.50	1.35250	1.35233	1.35216	1.35199	1.35182	1.35165	1.35148	1.35131	1.35114	1.35097	69.50
69.60	1.35080	1.35063	1.35046	1.35029	1.35012	1.34995	1.34978	1.34961	1.34944	1.34927	69.60
69.70	1.34911	1.34894	1.34877	1.34860	1.34843	1.34826	1.34809	1.34792	1.34775	1.34759	69.70
69.80	1.34742	1.34725	1.34708	1.34691	1.34674	1.34657	1.34641	1.34624	1.34607	1.34590	69.80
69.90	1.34573	1.34557	1.34540	1.34523	1.34506	1.34489	1.34473	1.34456	1.34439	1.34422	69.90
70.00	1.34406	1.34389	1.34372	1.34355	1.34339	1.34322	1.34305	1.34288	1.34272	1.34255	70.00
70.10	1.34238	1.34222	1.34205	1.34188	1.34172	1.34155	1.34138	1.34122	1.34105	1.34088	70.10
70.20	1.34072	1.34055	1.34038	1.34022	1.34005	1.33988	1.33972	1.33955	1.33939	1.33922	70.20
70.30	1.33905	1.33889	1.33872	1.33856	1.33839	1.33823	1.33806	1.33789	1.33773	1.33756	70.30
70.40	1.33740	1.33723	1.33707	1.33690	1.33674	1.33657	1.33641	1.33624	1.33608	1.33591	70.40
70.50	1.33575	1.33558	1.33542	1.33525	1.33509	1.33492	1.33476	1.33459	1.33443	1.33426	70.50
70.60	1.33410	1.33393	1.33377	1.33361	1.33344	1.33328	1.33311	1.33295	1.33278	1.33262	70.60
70.70	1.33246	1.33229	1.33213	1.33197	1.33180	1.33164	1.33147	1.33131	1.33115	1.33098	70.70
70.80	1.33082	1.33066	1.33049	1.33033	1.33017	1.33000	1.32984	1.32968	1.32951	1.32935	70.80
70.90	1.32919	1.32903	1.32886	1.32870	1.32854	1.32837	1.32821	1.32805	1.32789	1.32772	70.90
71.00	1.32756	1.32740	1.32724	1.32707	1.32691	1.32675	1.32659	1.32643	1.32626	1.32610	71.00
71.10	1.32594	1.32578	1.32562	1.32545	1.32529	1.32513	1.32497	1.32481	1.32465	1.32448	71.10
71.20	1.32432	1.32416	1.32400	1.32384	1.32368	1.32352	1.32336	1.32319	1.32303	1.32287	71.20
71.30	1.32271	1.32255	1.32239	1.32223	1.32207	1.32191	1.32175	1.32159	1.32143	1.32127	71.30
71.40	1.32110	1.32094	1.32078	1.32062	1.32046	1.32030	1.32014	1.31998	1.31982	1.31966	71.40
71.50	1.31950	1.31934	1.31918	1.31902	1.31886	1.31870	1.31854	1.31838	1.31822	1.31807	71.50
71.60	1.31791	1.31775	1.31759	1.31743	1.31727	1.31711	1.31695	1.31679	1.31663	1.31647	71.60
71.70	1.31631	1.31615	1.31600	1.31584	1.31568	1.31552	1.31536	1.31520	1.31504	1.31488	71.70
71.80	1.31473	1.31457	1.31441	1.31425	1.31409	1.31393	1.31378	1.31362	1.31346	1.31330	71.80
71.90	1.31314	1.31299	1.31283	1.31267	1.31251	1.31235	1.31220	1.31204	1.31188	1.31172	71.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
72.00	1.31157	1.31141	1.31125	1.31109	1.31094	1.31078	1.31062	1.31046	1.31031	1.31015	72.00
72.10	1.30999	1.30984	1.30968	1.30952	1.30936	1.30921	1.30905	1.30889	1.30874	1.30858	72.10
72.20	1.30842	1.30827	1.30811	1.30796	1.30780	1.30764	1.30749	1.30733	1.30717	1.30702	72.20
72.30	1.30686	1.30671	1.30655	1.30639	1.30624	1.30608	1.30593	1.30577	1.30561	1.30546	72.30
72.40	1.30530	1.30515	1.30499	1.30484	1.30468	1.30452	1.30437	1.30421	1.30406	1.30390	72.40
72.50	1.30375	1.30359	1.30344	1.30328	1.30313	1.30297	1.30282	1.30266	1.30251	1.30235	72.50
72.60	1.30220	1.30204	1.30189	1.30174	1.30158	1.30143	1.30127	1.30112	1.30096	1.30081	72.60
72.70	1.30065	1.30050	1.30035	1.30019	1.30004	1.29988	1.29973	1.29958	1.29942	1.29927	72.70
72.80	1.29911	1.29896	1.29881	1.29865	1.29850	1.29835	1.29819	1.29804	1.29789	1.29773	72.80
72.90	1.29758	1.29743	1.29727	1.29712	1.29697	1.29681	1.29666	1.29651	1.29635	1.29620	72.90
73.00	1.29605	1.29590	1.29574	1.29559	1.29544	1.29528	1.29513	1.29498	1.29483	1.29467	73.00
73.10	1.29452	1.29437	1.29422	1.29407	1.29391	1.29376	1.29361	1.29346	1.29330	1.29315	73.10
73.20	1.29300	1.29285	1.29270	1.29254	1.29239	1.29224	1.29209	1.29194	1.29179	1.29163	73.20
73.30	1.29148	1.29133	1.29118	1.29103	1.29088	1.29073	1.29058	1.29042	1.29027	1.29012	73.30
73.40	1.28997	1.28982	1.28967	1.28952	1.28937	1.28922	1.28907	1.28891	1.28876	1.28861	73.40
73.50	1.28846	1.28831	1.28816	1.28801	1.28786	1.28771	1.28756	1.28741	1.28726	1.28711	73.50
73.60	1.28696	1.28681	1.28666	1.28651	1.28636	1.28621	1.28606	1.28591	1.28576	1.28561	73.60
73.70	1.28546	1.28531	1.28516	1.28501	1.28486	1.28471	1.28456	1.28441	1.28426	1.28411	73.70
73.80	1.28397	1.28382	1.28367	1.28352	1.28337	1.28322	1.28307	1.28292	1.28277	1.28262	73.80
73.90	1.28248	1.28233	1.28218	1.28203	1.28188	1.28173	1.28158	1.28144	1.28129	1.28114	73.90
74.00	1.28099	1.28084	1.28069	1.28055	1.28040	1.28025	1.28010	1.27995	1.27980	1.27966	74.00
74.10	1.27951	1.27936	1.27921	1.27907	1.27892	1.27877	1.27862	1.27847	1.27833	1.27818	74.10
74.20	1.27803	1.27788	1.27774	1.27759	1.27744	1.27730	1.27715	1.27700	1.27685	1.27671	74.20
74.30	1.27656	1.27641	1.27627	1.27612	1.27597	1.27582	1.27568	1.27553	1.27538	1.27524	74.30
74.40	1.27509	1.27494	1.27480	1.27465	1.27451	1.27436	1.27421	1.27407	1.27392	1.27377	74.40
74.50	1.27363	1.27348	1.27334	1.27319	1.27304	1.27290	1.27275	1.27261	1.27246	1.27231	74.50
74.60	1.27217	1.27202	1.27188	1.27173	1.27159	1.27144	1.27129	1.27115	1.27100	1.27086	74.60
74.70	1.27071	1.27057	1.27042	1.27028	1.27013	1.26999	1.26984	1.26970	1.26955	1.26941	74.70
74.80	1.26926	1.26912	1.26897	1.26883	1.26868	1.26854	1.26839	1.26825	1.26810	1.26796	74.80
74.90	1.26782	1.26767	1.26753	1.26738	1.26724	1.26709	1.26695	1.26681	1.26666	1.26652	74.90
75.00	1.26637	1.26623	1.26608	1.26594	1.26580	1.26565	1.26551	1.26537	1.26522	1.26508	75.00
75.10	1.26493	1.26479	1.26465	1.26450	1.26436	1.26422	1.26407	1.26393	1.26379	1.26364	75.10
75.20	1.26350	1.26336	1.26321	1.26307	1.26293	1.26279	1.26264	1.26250	1.26236	1.26221	75.20
75.30	1.26207	1.26193	1.26179	1.26164	1.26150	1.26136	1.26122	1.26107	1.26093	1.26079	75.30
75.40	1.26065	1.26050	1.26036	1.26022	1.26008	1.25993	1.25979	1.25965	1.25951	1.25937	75.40
75.50	1.25922	1.25908	1.25894	1.25880	1.25866	1.25852	1.25837	1.25823	1.25809	1.25795	75.50
75.60	1.25781	1.25767	1.25752	1.25738	1.25724	1.25710	1.25696	1.25682	1.25668	1.25654	75.60
75.70	1.25639	1.25625	1.25611	1.25597	1.25583	1.25569	1.25555	1.25541	1.25527	1.25513	75.70
75.80	1.25499	1.25484	1.25470	1.25456	1.25442	1.25428	1.25414	1.25400	1.25386	1.25372	75.80
75.90	1.25358	1.25344	1.25330	1.25316	1.25302	1.25288	1.25274	1.25260	1.25246	1.25232	75.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
76.00	1.25218	1.25204	1.25190	1.25176	1.25162	1.25148	1.25134	1.25120	1.25106	1.25092	76.00
76.10	1.25078	1.25064	1.25050	1.25037	1.25023	1.25009	1.24995	1.24981	1.24967	1.24953	76.10
76.20	1.24939	1.24925	1.24911	1.24897	1.24884	1.24870	1.24856	1.24842	1.24828	1.24814	76.20
76.30	1.24800	1.24786	1.24773	1.24759	1.24745	1.24731	1.24717	1.24703	1.24689	1.24676	76.30
76.40	1.24662	1.24648	1.24634	1.24620	1.24607	1.24593	1.24579	1.24565	1.24551	1.24538	76.40
76.50	1.24524	1.24510	1.24496	1.24482	1.24469	1.24455	1.24441	1.24427	1.24414	1.24400	76.50
76.60	1.24386	1.24372	1.24359	1.24345	1.24331	1.24317	1.24304	1.24290	1.24276	1.24263	76.60
76.70	1.24249	1.24235	1.24221	1.24208	1.24194	1.24180	1.24167	1.24153	1.24139	1.24126	76.70
76.80	1.24112	1.24098	1.24085	1.24071	1.24057	1.24044	1.24030	1.24016	1.24003	1.23989	76.80
76.90	1.23976	1.23962	1.23948	1.23935	1.23921	1.23907	1.23894	1.23880	1.23867	1.23853	76.90
77.00	1.23839	1.23826	1.23812	1.23799	1.23765	1.23772	1.23758	1.23744	1.23731	1.23717	77.00
77.10	1.23704	1.23690	1.23677	1.23663	1.23650	1.23636	1.23623	1.23609	1.23596	1.23582	77.10
77.20	1.23569	1.23555	1.23542	1.23528	1.23515	1.23501	1.23488	1.23474	1.23461	1.23447	77.20
77.30	1.23434	1.23420	1.23407	1.23393	1.23380	1.23366	1.23353	1.23339	1.23326	1.23313	77.30
77.40	1.23299	1.23286	1.23272	1.23259	1.23245	1.23232	1.23219	1.23205	1.23192	1.23178	77.40
77.50	1.23165	1.23152	1.23138	1.23125	1.23112	1.23098	1.23085	1.23071	1.23058	1.23045	77.50
77.60	1.23031	1.23018	1.23005	1.22991	1.22978	1.22965	1.22951	1.22938	1.22925	1.22911	77.60
77.70	1.22898	1.22885	1.22871	1.22858	1.22845	1.22831	1.22818	1.22805	1.22792	1.22778	77.70
77.80	1.22765	1.22752	1.22738	1.22725	1.22712	1.22699	1.22685	1.22672	1.22659	1.22646	77.80
77.90	1.22632	1.22619	1.22606	1.22593	1.22580	1.22566	1.22553	1.22540	1.22527	1.22513	77.90
78.00	1.22500	1.22487	1.22474	1.22461	1.22447	1.22434	1.22421	1.22408	1.22395	1.22382	78.00
78.10	1.22368	1.22355	1.22342	1.22329	1.22316	1.22303	1.22290	1.22276	1.22263	1.22250	78.10
78.20	1.22237	1.22224	1.22211	1.22198	1.22184	1.22171	1.22158	1.22145	1.22132	1.22119	78.20
78.30	1.22106	1.22093	1.22080	1.22067	1.22054	1.22041	1.22027	1.22014	1.22001	1.21988	78.30
78.40	1.21975	1.21962	1.21949	1.21936	1.21923	1.21910	1.21897	1.21884	1.21871	1.21858	78.40
78.50	1.21845	1.21832	1.21819	1.21806	1.21793	1.21780	1.21767	1.21754	1.21741	1.21728	78.50
78.60	1.21715	1.21702	1.21689	1.21676	1.21663	1.21650	1.21637	1.21624	1.21611	1.21598	78.60
78.70	1.21585	1.21572	1.21559	1.21547	1.21534	1.21521	1.21508	1.21495	1.21482	1.21469	78.70
78.80	1.21456	1.21443	1.21430	1.21417	1.21405	1.21392	1.21379	1.21366	1.21353	1.21340	78.80
78.90	1.21327	1.21314	1.21302	1.21289	1.21276	1.21263	1.21250	1.21237	1.21224	1.21212	78.90
79.00	1.21199	1.21186	1.21173	1.21160	1.21147	1.21135	1.21122	1.21109	1.21096	1.21083	79.00
79.10	1.21071	1.21058	1.21045	1.21032	1.21020	1.21007	1.20994	1.20981	1.20968	1.20956	79.10
79.20	1.20943	1.20930	1.20917	1.20905	1.20892	1.20879	1.20866	1.20854	1.20841	1.20828	79.20
79.30	1.20815	1.20803	1.20790	1.20777	1.20765	1.20752	1.20739	1.20727	1.20714	1.20701	79.30
79.40	1.20688	1.20676	1.20663	1.20650	1.20638	1.20625	1.20612	1.20600	1.20587	1.20574	79.40
79.50	1.20562	1.20549	1.20536	1.20524	1.20511	1.20499	1.20486	1.20473	1.20461	1.20448	79.50
79.60	1.20435	1.20423	1.20410	1.20398	1.20385	1.20372	1.20360	1.20347	1.20335	1.20322	79.60
79.70	1.20309	1.20297	1.20284	1.20272	1.20259	1.20247	1.20234	1.20222	1.20209	1.20196	79.70
79.80	1.20184	1.20171	1.20159	1.20146	1.20134	1.20121	1.20109	1.20096	1.20084	1.20071	79.80
79.90	1.20059	1.20046	1.20034	1.20021	1.20009	1.19996	1.19984	1.19971	1.19959	1.19946	79.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
80.00	1.19934	1.19921	1.19909	1.19896	1.19884	1.19871	1.19859	1.19846	1.19834	1.19822	80.00
80.10	1.19809	1.19797	1.19784	1.19772	1.19759	1.19747	1.19735	1.19722	1.19710	1.19697	80.10
80.20	1.19685	1.19673	1.19660	1.19648	1.19635	1.19623	1.19611	1.19598	1.19586	1.19573	80.20
80.30	1.19561	1.19549	1.19536	1.19524	1.19512	1.19499	1.19487	1.19475	1.19462	1.19450	80.30
80.40	1.19438	1.19425	1.19413	1.19401	1.19388	1.19376	1.19364	1.19351	1.19339	1.19327	80.40
80.50	1.19314	1.19302	1.19290	1.19278	1.19265	1.19253	1.19241	1.19228	1.19216	1.19204	80.50
80.60	1.19192	1.19179	1.19167	1.19155	1.19143	1.19130	1.19118	1.19106	1.19094	1.19081	80.60
80.70	1.19069	1.19057	1.19045	1.19032	1.19020	1.19008	1.18996	1.18984	1.18971	1.18959	80.70
80.80	1.18947	1.18935	1.18923	1.18910	1.18898	1.18886	1.18874	1.18862	1.18850	1.18837	80.80
80.90	1.18825	1.18813	1.18801	1.18789	1.18777	1.18764	1.18752	1.18740	1.18728	1.18716	80.90
81.00	1.18704	1.18692	1.18679	1.18667	1.18655	1.18643	1.18631	1.18619	1.18607	1.18595	81.00
81.10	1.18583	1.18571	1.18558	1.18546	1.18534	1.18522	1.18510	1.18498	1.18486	1.18474	81.10
81.20	1.18462	1.18450	1.18438	1.18426	1.18414	1.18402	1.18390	1.18377	1.18365	1.18353	81.20
81.30	1.18341	1.18329	1.18317	1.18305	1.18293	1.18281	1.18269	1.18257	1.18245	1.18233	81.30
81.40	1.18221	1.18209	1.18197	1.18185	1.18173	1.18161	1.18149	1.18137	1.18125	1.18113	81.40
81.50	1.18101	1.18090	1.18078	1.18066	1.18054	1.18042	1.18030	1.18018	1.18006	1.17994	81.50
81.60	1.17982	1.17970	1.17958	1.17946	1.17934	1.17922	1.17911	1.17899	1.17887	1.17875	81.60
81.70	1.17863	1.17851	1.17839	1.17827	1.17815	1.17803	1.17792	1.17780	1.17768	1.17756	81.70
81.80	1.17744	1.17732	1.17720	1.17709	1.17697	1.17685	1.17673	1.17661	1.17649	1.17638	81.80
81.90	1.17626	1.17614	1.17602	1.17590	1.17578	1.17567	1.17555	1.17543	1.17531	1.17519	81.90
82.00	1.17508	1.17496	1.17484	1.17472	1.17460	1.17449	1.17437	1.17425	1.17413	1.17402	82.00
82.10	1.17390	1.17378	1.17366	1.17354	1.17343	1.17331	1.17319	1.17307	1.17296	1.17284	82.10
82.20	1.17272	1.17261	1.17249	1.17237	1.17225	1.17214	1.17202	1.17190	1.17179	1.17167	82.20
82.30	1.17155	1.17143	1.17132	1.17120	1.17108	1.17097	1.17085	1.17073	1.17062	1.17050	82.30
82.40	1.17038	1.17027	1.17015	1.17003	1.16992	1.16980	1.16968	1.16957	1.16945	1.16933	82.40
82.50	1.16922	1.16910	1.16899	1.16887	1.16875	1.16864	1.16852	1.16840	1.16829	1.16817	82.50
82.60	1.16806	1.16794	1.16782	1.16771	1.16759	1.16748	1.16736	1.16724	1.16713	1.16701	82.60
82.70	1.16690	1.16678	1.16667	1.16655	1.16643	1.16632	1.16620	1.16609	1.16597	1.16586	82.70
82.80	1.16574	1.16563	1.16551	1.16540	1.16528	1.16517	1.16505	1.16494	1.16482	1.16470	82.80
82.90	1.16459	1.16447	1.16436	1.16424	1.16413	1.16401	1.16390	1.16378	1.16367	1.16356	82.90
83.00	1.16344	1.16333	1.16321	1.16310	1.16298	1.16287	1.16275	1.16264	1.16252	1.16241	83.00
83.10	1.16229	1.16218	1.16207	1.16195	1.16184	1.16172	1.16161	1.16149	1.16138	1.16127	83.10
83.20	1.16115	1.16104	1.16092	1.16081	1.16070	1.16058	1.16047	1.16035	1.16024	1.16013	83.20
83.30	1.16001	1.15990	1.15978	1.15967	1.15956	1.15944	1.15933	1.15922	1.15910	1.15899	83.30
83.40	1.15888	1.15876	1.15865	1.15853	1.15842	1.15831	1.15819	1.15808	1.15797	1.15785	83.40
83.50	1.15774	1.15763	1.15752	1.15740	1.15729	1.15718	1.15706	1.15695	1.15684	1.15672	83.50
83.60	1.15661	1.15650	1.15639	1.15627	1.15616	1.15605	1.15593	1.15582	1.15571	1.15560	83.60
83.70	1.15548	1.15537	1.15526	1.15515	1.15503	1.15492	1.15481	1.15470	1.15458	1.15447	83.70
83.80	1.15436	1.15425	1.15414	1.15402	1.15391	1.15380	1.15369	1.15357	1.15346	1.15335	83.80
83.90	1.15324	1.15313	1.15301	1.15290	1.15279	1.15268	1.15257	1.15246	1.15234	1.15223	83.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
84.00	1.15212	1.15201	1.15190	1.15179	1.15167	1.15156	1.15145	1.15134	1.15123	1.15112	84.00
84.10	1.15101	1.15089	1.15078	1.15067	1.15056	1.15045	1.15034	1.15023	1.15012	1.15000	84.10
84.20	1.14989	1.14978	1.14967	1.14956	1.14945	1.14934	1.14923	1.14912	1.14901	1.14889	84.20
84.30	1.14878	1.14867	1.14856	1.14845	1.14834	1.14823	1.14812	1.14801	1.14790	1.14779	84.30
84.40	1.14768	1.14757	1.14746	1.14735	1.14724	1.14713	1.14702	1.14691	1.14680	1.14669	84.40
84.50	1.14658	1.14646	1.14635	1.14624	1.14613	1.14602	1.14591	1.14580	1.14569	1.14558	84.50
84.60	1.14547	1.14537	1.14526	1.14515	1.14504	1.14493	1.14482	1.14471	1.14460	1.14449	84.60
84.70	1.14438	1.14427	1.14416	1.14405	1.14394	1.14383	1.14372	1.14361	1.14350	1.14339	84.70
84.80	1.14328	1.14317	1.14307	1.14296	1.14285	1.14274	1.14263	1.14252	1.14241	1.14230	84.80
84.90	1.14219	1.14208	1.14197	1.14187	1.14176	1.14165	1.14154	1.14143	1.14132	1.14121	84.90
85.00	1.14110	1.14100	1.14089	1.14078	1.14067	1.14056	1.14045	1.14034	1.14024	1.14013	85.00
85.10	1.14002	1.13991	1.13980	1.13969	1.13959	1.13948	1.13937	1.13926	1.13915	1.13904	85.10
85.20	1.13894	1.13883	1.13872	1.13861	1.13850	1.13840	1.13829	1.13818	1.13807	1.13797	85.20
85.30	1.13786	1.13775	1.13764	1.13753	1.13743	1.13732	1.13721	1.13710	1.13700	1.13689	85.30
85.40	1.13678	1.13667	1.13657	1.13646	1.13635	1.13624	1.13614	1.13603	1.13592	1.13581	85.40
85.50	1.13571	1.13560	1.13549	1.13539	1.13528	1.13517	1.13506	1.13496	1.13485	1.13474	85.50
85.60	1.13464	1.13453	1.13442	1.13432	1.13421	1.13410	1.13400	1.13389	1.13378	1.13368	85.60
85.70	1.13357	1.13346	1.13336	1.13325	1.13314	1.13304	1.13293	1.13282	1.13272	1.13261	85.70
85.80	1.13250	1.13240	1.13229	1.13218	1.13208	1.13197	1.13187	1.13176	1.13165	1.13155	85.80
85.90	1.13144	1.13134	1.13123	1.13112	1.13102	1.13091	1.13081	1.13070	1.13059	1.13049	85.90
86.00	1.13038	1.13028	1.13017	1.13007	1.12996	1.12985	1.12975	1.12964	1.12954	1.12943	86.00
86.10	1.12933	1.12922	1.12912	1.12901	1.12890	1.12880	1.12869	1.12859	1.12848	1.12838	86.10
86.20	1.12827	1.12817	1.12806	1.12796	1.12785	1.12775	1.12764	1.12754	1.12743	1.12733	86.20
86.30	1.12722	1.12712	1.12701	1.12691	1.12680	1.12670	1.12659	1.12649	1.12638	1.12628	86.30
86.40	1.12617	1.12607	1.12596	1.12586	1.12576	1.12565	1.12555	1.12544	1.12534	1.12523	86.40
86.50	1.12513	1.12502	1.12492	1.12482	1.12471	1.12461	1.12450	1.12440	1.12429	1.12419	86.50
86.60	1.12409	1.12398	1.12388	1.12377	1.12367	1.12357	1.12346	1.12336	1.12325	1.12315	86.60
86.70	1.12305	1.12294	1.12284	1.12274	1.12263	1.12253	1.12242	1.12232	1.12222	1.12211	86.70
86.80	1.12201	1.12191	1.12180	1.12170	1.12160	1.12149	1.12139	1.12129	1.12118	1.12108	86.80
86.90	1.12098	1.12087	1.12077	1.12067	1.12056	1.12046	1.12036	1.12025	1.12015	1.12005	86.90
87.00	1.11994	1.11984	1.11974	1.11964	1.11953	1.11943	1.11933	1.11922	1.11912	1.11902	87.00
87.10	1.11892	1.11881	1.11871	1.11861	1.11851	1.11840	1.11830	1.11820	1.11810	1.11799	87.10
87.20	1.11789	1.11779	1.11769	1.11758	1.11748	1.11738	1.11728	1.11717	1.11707	1.11697	87.20
87.30	1.11687	1.11677	1.11666	1.11656	1.11646	1.11636	1.11625	1.11615	1.11605	1.11595	87.30
87.40	1.11585	1.11575	1.11564	1.11554	1.11544	1.11534	1.11524	1.11513	1.11503	1.11493	87.40
87.50	1.11483	1.11473	1.11463	1.11452	1.11442	1.11432	1.11422	1.11412	1.11402	1.11392	87.50
87.60	1.11381	1.11371	1.11361	1.11351	1.11341	1.11331	1.11321	1.11311	1.11300	1.11290	87.60
87.70	1.11280	1.11270	1.11260	1.11250	1.11240	1.11230	1.11220	1.11210	1.11199	1.11189	87.70
87.80	1.11179	1.11169	1.11159	1.11149	1.11139	1.11129	1.11119	1.11109	1.11099	1.11089	87.80
87.90	1.11079	1.11069	1.11058	1.11048	1.11038	1.11028	1.11018	1.11008	1.10998	1.10988	87.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
88.00	1.10978	1.10968	1.10958	1.10948	1.10938	1.10928	1.10918	1.10908	1.10898	1.10888	88.00
88.10	1.10878	1.10868	1.10858	1.10848	1.10838	1.10828	1.10818	1.10808	1.10798	1.10788	88.10
88.20	1.10778	1.10768	1.10758	1.10748	1.10738	1.10728	1.10718	1.10708	1.10698	1.10688	88.20
88.30	1.10678	1.10669	1.10659	1.10649	1.10639	1.10629	1.10619	1.10609	1.10599	1.10589	88.30
88.40	1.10579	1.10569	1.10559	1.10549	1.10539	1.10530	1.10520	1.10510	1.10500	1.10490	88.40
88.50	1.10480	1.10470	1.10460	1.10450	1.10440	1.10431	1.10421	1.10411	1.10401	1.10391	88.50
88.60	1.10381	1.10371	1.10361	1.10352	1.10342	1.10332	1.10322	1.10312	1.10302	1.10292	88.60
88.70	1.10283	1.10273	1.10263	1.10253	1.10243	1.10233	1.10224	1.10214	1.10204	1.10194	88.70
88.80	1.10184	1.10174	1.10165	1.10155	1.10145	1.10135	1.10125	1.10116	1.10106	1.10096	88.80
88.90	1.10086	1.10076	1.10067	1.10057	1.10047	1.10037	1.10028	1.10018	1.10008	1.09998	88.90
89.00	1.09988	1.09979	1.09969	1.09959	1.09949	1.09940	1.09930	1.09920	1.09910	1.09901	89.00
89.10	1.09891	1.09881	1.09871	1.09862	1.09852	1.09842	1.09832	1.09823	1.09813	1.09803	89.10
89.20	1.09794	1.09784	1.09774	1.09764	1.09755	1.09745	1.09735	1.09726	1.09716	1.09706	89.20
89.30	1.09697	1.09687	1.09677	1.09667	1.09658	1.09648	1.09638	1.09629	1.09619	1.09609	89.30
89.40	1.09600	1.09590	1.09580	1.09571	1.09561	1.09551	1.09542	1.09532	1.09523	1.09513	89.40
89.50	1.09503	1.09494	1.09484	1.09474	1.09465	1.09455	1.09445	1.09436	1.09426	1.09417	89.50
89.60	1.09407	1.09397	1.09388	1.09378	1.09369	1.09359	1.09349	1.09340	1.09330	1.09321	89.60
89.70	1.09311	1.09301	1.09292	1.09282	1.09273	1.09263	1.09253	1.09244	1.09234	1.09225	89.70
89.80	1.09215	1.09206	1.09196	1.09187	1.09177	1.09167	1.09158	1.09148	1.09139	1.09129	89.80
89.90	1.09120	1.09110	1.09101	1.09091	1.09082	1.09072	1.09062	1.09053	1.09043	1.09034	89.90
90.00	1.09024	1.09015	1.09005	1.08996	1.08986	1.08977	1.08967	1.08958	1.08948	1.08939	90.00
90.10	1.08929	1.08920	1.08910	1.08901	1.08891	1.08882	1.08873	1.08863	1.08854	1.08844	90.10
90.20	1.08835	1.08825	1.08816	1.08806	1.08797	1.08787	1.08778	1.08768	1.08759	1.08750	90.20
90.30	1.08740	1.08731	1.08721	1.08712	1.08702	1.08693	1.08684	1.08674	1.08665	1.08655	90.30
90.40	1.08646	1.08636	1.08627	1.08618	1.08608	1.08599	1.08589	1.08580	1.08571	1.08561	90.40
90.50	1.08552	1.08542	1.08533	1.08524	1.08514	1.08505	1.08495	1.08486	1.08477	1.08467	90.50
90.60	1.08458	1.08449	1.08439	1.08430	1.08421	1.08411	1.08402	1.08393	1.08383	1.08374	90.60
90.70	1.08364	1.08355	1.08346	1.08336	1.08327	1.08318	1.08308	1.08299	1.08290	1.08280	90.70
90.80	1.08271	1.08262	1.08253	1.08243	1.08234	1.08225	1.08215	1.08206	1.08197	1.08187	90.80
90.90	1.08178	1.08169	1.08160	1.08150	1.08141	1.08132	1.08122	1.08113	1.08104	1.08095	90.90
91.00	1.08085	1.08076	1.08067	1.08058	1.08048	1.08039	1.08030	1.08020	1.08011	1.08002	91.00
91.10	1.07993	1.07984	1.07974	1.07965	1.07956	1.07947	1.07937	1.07928	1.07919	1.07910	91.10
91.20	1.07900	1.07891	1.07882	1.07873	1.07864	1.07854	1.07845	1.07836	1.07827	1.07818	91.20
91.30	1.07808	1.07799	1.07790	1.07781	1.07772	1.07762	1.07753	1.07744	1.07735	1.07726	91.30
91.40	1.07716	1.07707	1.07698	1.07689	1.07680	1.07671	1.07661	1.07652	1.07643	1.07634	91.40
91.50	1.07625	1.07616	1.07607	1.07597	1.07588	1.07579	1.07570	1.07561	1.07552	1.07543	91.50
91.60	1.07533	1.07524	1.07515	1.07506	1.07497	1.07488	1.07479	1.07470	1.07461	1.07451	91.60
91.70	1.07442	1.07433	1.07424	1.07415	1.07406	1.07397	1.07388	1.07379	1.07370	1.07361	91.70
91.80	1.07351	1.07342	1.07333	1.07324	1.07315	1.07306	1.07297	1.07288	1.07279	1.07270	91.80
91.90	1.07261	1.07252	1.07243	1.07234	1.07225	1.07216	1.07206	1.07197	1.07188	1.07179	91.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
92.00	1.07170	1.07161	1.07152	1.07143	1.07134	1.07125	1.07116	1.07107	1.07098	1.07089	92.00
92.10	1.07080	1.07071	1.07062	1.07053	1.07044	1.07035	1.07026	1.07017	1.07008	1.06999	92.10
92.20	1.06990	1.06981	1.06972	1.06963	1.06954	1.06945	1.06936	1.06927	1.06918	1.06909	92.20
92.30	1.06900	1.06891	1.06883	1.06874	1.06865	1.06856	1.06847	1.06838	1.06829	1.06820	92.30
92.40	1.06811	1.06802	1.06793	1.06784	1.06775	1.06766	1.06757	1.06748	1.06740	1.06731	92.40
92.50	1.06722	1.06713	1.06704	1.06695	1.06686	1.06677	1.06668	1.06659	1.06650	1.06642	92.50
92.60	1.06633	1.06624	1.06615	1.06606	1.06597	1.06588	1.06579	1.06570	1.06562	1.06553	92.60
92.70	1.06544	1.06535	1.06526	1.06517	1.06508	1.06500	1.06491	1.06482	1.06473	1.06464	92.70
92.80	1.06455	1.06446	1.06438	1.06429	1.06420	1.06411	1.06402	1.06393	1.06385	1.06376	92.80
92.90	1.06367	1.06358	1.06349	1.06340	1.06332	1.06323	1.06314	1.06305	1.06296	1.06288	92.90
93.00	1.06279	1.06270	1.06261	1.06252	1.06244	1.06235	1.06226	1.06217	1.06208	1.06200	93.00
93.10	1.06191	1.06182	1.06173	1.06165	1.06156	1.06147	1.06138	1.06129	1.06121	1.06112	93.10
93.20	1.06103	1.06094	1.06086	1.06077	1.06068	1.06059	1.06051	1.06042	1.06033	1.06024	93.20
93.30	1.06016	1.06007	1.05998	1.05990	1.05981	1.05972	1.05963	1.05955	1.05946	1.05937	93.30
93.40	1.05929	1.05920	1.05911	1.05902	1.05894	1.05885	1.05876	1.05868	1.05859	1.05850	93.40
93.50	1.05842	1.05833	1.05824	1.05815	1.05807	1.05798	1.05789	1.05781	1.05772	1.05763	93.50
93.60	1.05755	1.05746	1.05737	1.05729	1.05720	1.05711	1.05703	1.05694	1.05685	1.05677	93.60
93.70	1.05668	1.05660	1.05651	1.05642	1.05634	1.05625	1.05616	1.05608	1.05599	1.05590	93.70
93.80	1.05582	1.05573	1.05565	1.05556	1.05547	1.05539	1.05530	1.05522	1.05513	1.05504	93.80
93.90	1.05496	1.05487	1.05479	1.05470	1.05461	1.05453	1.05444	1.05436	1.05427	1.05418	93.90
94.00	1.05410	1.05401	1.05393	1.05384	1.05376	1.05367	1.05358	1.05350	1.05341	1.05333	94.00
94.10	1.05324	1.05316	1.05307	1.05299	1.05290	1.05281	1.05273	1.05264	1.05256	1.05247	94.10
94.20	1.05239	1.05230	1.05222	1.05213	1.05205	1.05196	1.05188	1.05179	1.05171	1.05162	94.20
94.30	1.05154	1.05145	1.05136	1.05128	1.05119	1.05111	1.05102	1.05094	1.05085	1.05077	94.30
94.40	1.05069	1.05060	1.05052	1.05043	1.05035	1.05026	1.05018	1.05009	1.05001	1.04992	94.40
94.50	1.04984	1.04975	1.04967	1.04958	1.04950	1.04941	1.04933	1.04924	1.04916	1.04908	94.50
94.60	1.04899	1.04891	1.04882	1.04874	1.04865	1.04857	1.04848	1.04840	1.04832	1.04823	94.60
94.70	1.04815	1.04806	1.04798	1.04789	1.04781	1.04773	1.04764	1.04756	1.04747	1.04739	94.70
94.80	1.04731	1.04722	1.04714	1.04705	1.04697	1.04689	1.04680	1.04672	1.04663	1.04655	94.80
94.90	1.04647	1.04638	1.04630	1.04622	1.04613	1.04605	1.04596	1.04588	1.04580	1.04571	94.90
95.00	1.04563	1.04555	1.04546	1.04538	1.04530	1.04521	1.04513	1.04504	1.04496	1.04488	95.00
95.10	1.04479	1.04471	1.04463	1.04454	1.04446	1.04438	1.04429	1.04421	1.04413	1.04404	95.10
95.20	1.04396	1.04388	1.04380	1.04371	1.04363	1.04355	1.04346	1.04338	1.04330	1.04321	95.20
95.30	1.04313	1.04305	1.04296	1.04288	1.04280	1.04272	1.04263	1.04255	1.04247	1.04238	95.30
95.40	1.04230	1.04222	1.04214	1.04205	1.04197	1.04189	1.04181	1.04172	1.04164	1.04156	95.40
95.50	1.04148	1.04139	1.04131	1.04123	1.04115	1.04106	1.04098	1.04090	1.04082	1.04073	95.50
95.60	1.04065	1.04057	1.04049	1.04040	1.04032	1.04024	1.04016	1.04008	1.03999	1.03991	95.60
95.70	1.03983	1.03975	1.03966	1.03958	1.03950	1.03942	1.03934	1.03925	1.03917	1.03909	95.70
95.80	1.03901	1.03893	1.03884	1.03876	1.03868	1.03860	1.03852	1.03844	1.03835	1.03827	95.80
95.90	1.03819	1.03811	1.03803	1.03794	1.03786	1.03778	1.03770	1.03762	1.03754	1.03746	95.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
96.00	1.03737	1.03729	1.03721	1.03713	1.03705	1.03697	1.03689	1.03680	1.03672	1.03664	96.00
96.10	1.03656	1.03648	1.03640	1.03632	1.03623	1.03615	1.03607	1.03599	1.03591	1.03583	96.10
96.20	1.03575	1.03567	1.03559	1.03550	1.03542	1.03534	1.03526	1.03518	1.03510	1.03502	96.20
96.30	1.03494	1.03486	1.03478	1.03470	1.03461	1.03453	1.03445	1.03437	1.03429	1.03421	96.30
96.40	1.03413	1.03405	1.03397	1.03389	1.03381	1.03373	1.03365	1.03357	1.03349	1.03340	96.40
96.50	1.03332	1.03324	1.03316	1.03308	1.03300	1.03292	1.03284	1.03276	1.03268	1.03260	96.50
96.60	1.03252	1.03244	1.03236	1.03228	1.03220	1.03212	1.03204	1.03196	1.03188	1.03180	96.60
96.70	1.03172	1.03164	1.03156	1.03148	1.03140	1.03132	1.03124	1.03116	1.03108	1.03100	96.70
96.80	1.03092	1.03084	1.03076	1.03068	1.03060	1.03052	1.03044	1.03036	1.03028	1.03020	96.80
96.90	1.03012	1.03004	1.02996	1.02988	1.02980	1.02972	1.02964	1.02956	1.02948	1.02940	96.90
97.00	1.02933	1.02925	1.02917	1.02909	1.02901	1.02893	1.02885	1.02877	1.02869	1.02861	97.00
97.10	1.02853	1.02845	1.02837	1.02829	1.02821	1.02814	1.02806	1.02798	1.02790	1.02782	97.10
97.20	1.02774	1.02766	1.02758	1.02750	1.02742	1.02734	1.02727	1.02719	1.02711	1.02703	97.20
97.30	1.02695	1.02687	1.02679	1.02671	1.02663	1.02656	1.02648	1.02640	1.02632	1.02624	97.30
97.40	1.02616	1.02608	1.02601	1.02593	1.02585	1.02577	1.02569	1.02561	1.02553	1.02546	97.40
97.50	1.02538	1.02530	1.02522	1.02514	1.02506	1.02498	1.02491	1.02483	1.02475	1.02467	97.50
97.60	1.02459	1.02451	1.02444	1.02436	1.02428	1.02420	1.02412	1.02405	1.02397	1.02389	97.60
97.70	1.02381	1.02373	1.02366	1.02358	1.02350	1.02342	1.02334	1.02327	1.02319	1.02311	97.70
97.80	1.02303	1.02295	1.02288	1.02280	1.02272	1.02264	1.02256	1.02249	1.02241	1.02233	97.80
97.90	1.02225	1.02218	1.02210	1.02202	1.02194	1.02187	1.02179	1.02171	1.02163	1.02156	97.90
98.00	1.02148	1.02140	1.02132	1.02125	1.02117	1.02109	1.02101	1.02094	1.02086	1.02078	98.00
98.10	1.02070	1.02063	1.02055	1.02047	1.02039	1.02032	1.02024	1.02016	1.02009	1.02001	98.10
98.20	1.01993	1.01985	1.01978	1.01970	1.01962	1.01955	1.01947	1.01939	1.01932	1.01924	98.20
98.30	1.01916	1.01908	1.01901	1.01893	1.01885	1.01878	1.01870	1.01862	1.01855	1.01847	98.30
98.40	1.01839	1.01832	1.01824	1.01816	1.01809	1.01801	1.01793	1.01786	1.01778	1.01770	98.40
98.50	1.01763	1.01755	1.01747	1.01740	1.01732	1.01725	1.01717	1.01709	1.01702	1.01694	98.50
98.60	1.01686	1.01679	1.01671	1.01663	1.01656	1.01648	1.01641	1.01633	1.01625	1.01618	98.60
98.70	1.01610	1.01602	1.01595	1.01587	1.01580	1.01572	1.01564	1.01557	1.01549	1.01542	98.70
98.80	1.01534	1.01526	1.01519	1.01511	1.01504	1.01496	1.01489	1.01481	1.01473	1.01466	98.80
98.90	1.01458	1.01451	1.01443	1.01435	1.01428	1.01420	1.01413	1.01405	1.01398	1.01390	98.90
99.00	1.01383	1.01375	1.01367	1.01360	1.01352	1.01345	1.01337	1.01330	1.01322	1.01315	99.00
99.10	1.01307	1.01300	1.01292	1.01284	1.01277	1.01269	1.01262	1.01254	1.01247	1.01239	99.10
99.20	1.01232	1.01224	1.01217	1.01209	1.01202	1.01194	1.01187	1.01179	1.01172	1.01164	99.20
99.30	1.01157	1.01149	1.01142	1.01134	1.01127	1.01119	1.01112	1.01104	1.01097	1.01089	99.30
99.40	1.01082	1.01074	1.01067	1.01059	1.01052	1.01044	1.01037	1.01029	1.01022	1.01015	99.40
99.50	1.01007	1.01000	1.00992	1.00985	1.00977	1.00970	1.00962	1.00955	1.00947	1.00940	99.50
99.60	1.00933	1.00925	1.00918	1.00910	1.00903	1.00895	1.00888	1.00881	1.00873	1.00866	99.60
99.70	1.00858	1.00851	1.00843	1.00836	1.00829	1.00821	1.00814	1.00806	1.00799	1.00791	99.70
99.80	1.00784	1.00777	1.00769	1.00762	1.00754	1.00747	1.00740	1.00732	1.00725	1.00718	99.80
99.90	1.00710	1.00703	1.00695	1.00688	1.00681	1.00673	1.00666	1.00658	1.00651	1.00644	99.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
100.00	1.00636	1.00629	1.00622	1.00614	1.00607	1.00600	1.00592	1.00585	1.00577	1.00570	100.00
100.10	1.00563	1.00555	1.00548	1.00541	1.00533	1.00526	1.00519	1.00511	1.00504	1.00497	100.10
100.20	1.00489	1.00482	1.00475	1.00467	1.00460	1.00453	1.00445	1.00438	1.00431	1.00423	100.20
100.30	1.00416	1.00409	1.00401	1.00394	1.00387	1.00380	1.00372	1.00365	1.00358	1.00350	100.30
100.40	1.00343	1.00336	1.00328	1.00321	1.00314	1.00307	1.00299	1.00292	1.00285	1.00277	100.40
100.50	1.00270	1.00263	1.00256	1.00248	1.00241	1.00234	1.00227	1.00219	1.00212	1.00205	100.50
100.60	1.00197	1.00190	1.00183	1.00176	1.00168	1.00161	1.00154	1.00147	1.00139	1.00132	100.60
100.70	1.00125	1.00118	1.00111	1.00103	1.00096	1.00089	1.00082	1.00074	1.00067	1.00060	100.70
100.80	1.00053	1.00045	1.00038	1.00031	1.00024	1.00017	1.00009	1.00002	0.99995	0.99988	100.80
100.90	0.99981	0.99973	0.99966	0.99959	0.99952	0.99945	0.99937	0.99930	0.99923	0.99916	100.90
101.00	0.99909	0.99901	0.99894	0.99887	0.99880	0.99873	0.99865	0.99858	0.99851	0.99844	101.00
101.10	0.99837	0.99830	0.99822	0.99815	0.99808	0.99801	0.99794	0.99787	0.99779	0.99772	101.10
101.20	0.99765	0.99758	0.99751	0.99744	0.99737	0.99729	0.99722	0.99715	0.99708	0.99701	101.20
101.30	0.99694	0.99687	0.99679	0.99672	0.99665	0.99658	0.99651	0.99644	0.99637	0.99630	101.30
101.40	0.99623	0.99615	0.99608	0.99601	0.99594	0.99587	0.99580	0.99573	0.99566	0.99559	101.40
101.50	0.99551	0.99544	0.99537	0.99530	0.99523	0.99516	0.99509	0.99502	0.99495	0.99488	101.50
101.60	0.99481	0.99473	0.99466	0.99459	0.99452	0.99445	0.99438	0.99431	0.99424	0.99417	101.60
101.70	0.99410	0.99403	0.99396	0.99389	0.99382	0.99375	0.99367	0.99360	0.99353	0.99346	101.70
101.80	0.99339	0.99332	0.99325	0.99318	0.99311	0.99304	0.99297	0.99290	0.99283	0.99276	101.80
101.90	0.99269	0.99262	0.99255	0.99248	0.99241	0.99234	0.99227	0.99220	0.99213	0.99206	101.90
102.00	0.99199	0.99192	0.99185	0.99178	0.99171	0.99164	0.99157	0.99150	0.99143	0.99136	102.00
102.10	0.99129	0.99122	0.99115	0.99108	0.99101	0.99094	0.99087	0.99080	0.99073	0.99066	102.10
102.20	0.99059	0.99052	0.99045	0.99038	0.99031	0.99024	0.99017	0.99010	0.99003	0.98996	102.20
102.30	0.98989	0.98982	0.98975	0.98968	0.98961	0.98954	0.98948	0.98941	0.98934	0.98927	102.30
102.40	0.98920	0.98913	0.98906	0.98899	0.98892	0.98885	0.98878	0.98871	0.98864	0.98857	102.40
102.50	0.98850	0.98843	0.98837	0.98830	0.98823	0.98816	0.98809	0.98802	0.98795	0.98788	102.50
102.60	0.98781	0.98774	0.98767	0.98761	0.98754	0.98747	0.98740	0.98733	0.98726	0.98719	102.60
102.70	0.98712	0.98705	0.98699	0.98692	0.98685	0.98678	0.98671	0.98664	0.98657	0.98650	102.70
102.80	0.98643	0.98637	0.98630	0.98623	0.98616	0.98609	0.98602	0.98595	0.98589	0.98582	102.80
102.90	0.98575	0.98568	0.98561	0.98554	0.98547	0.98541	0.98534	0.98527	0.98520	0.98513	102.90
103.00	0.98506	0.98500	0.98493	0.98486	0.98479	0.98472	0.98465	0.98459	0.98452	0.98445	103.00
103.10	0.98438	0.98431	0.98424	0.98418	0.98411	0.98404	0.98397	0.98390	0.98384	0.98377	103.10
103.20	0.98370	0.98363	0.98356	0.98350	0.98343	0.98336	0.98329	0.98322	0.98316	0.98309	103.20
103.30	0.98302	0.98295	0.98288	0.98282	0.98275	0.98268	0.98261	0.98255	0.98248	0.98241	103.30
103.40	0.98234	0.98227	0.98221	0.98214	0.98207	0.98200	0.98194	0.98187	0.98180	0.98173	103.40
103.50	0.98167	0.98160	0.98153	0.98146	0.98140	0.98133	0.98126	0.98119	0.98113	0.98106	103.50
103.60	0.98099	0.98092	0.98086	0.98079	0.98072	0.98065	0.98059	0.98052	0.98045	0.98039	103.60
103.70	0.98032	0.98025	0.98018	0.98012	0.98005	0.97998	0.97992	0.97985	0.97978	0.97971	103.70
103.80	0.97965	0.97958	0.97951	0.97945	0.97938	0.97931	0.97925	0.97918	0.97911	0.97904	103.80
103.90	0.97898	0.97891	0.97884	0.97878	0.97871	0.97864	0.97858	0.97851	0.97844	0.97838	103.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
104.00	0.97831	0.97824	0.97818	0.97811	0.97804	0.97798	0.97791	0.97784	0.97778	0.97771	104.00
104.10	0.97764	0.97758	0.97751	0.97744	0.97738	0.97731	0.97725	0.97718	0.97711	0.97705	104.10
104.20	0.97698	0.97691	0.97685	0.97678	0.97671	0.97665	0.97658	0.97652	0.97645	0.97638	104.20
104.30	0.97632	0.97625	0.97618	0.97612	0.97605	0.97599	0.97592	0.97585	0.97579	0.97572	104.30
104.40	0.97566	0.97559	0.97552	0.97546	0.97539	0.97533	0.97526	0.97519	0.97513	0.97506	104.40
104.50	0.97500	0.97493	0.97486	0.97480	0.97473	0.97467	0.97460	0.97454	0.97447	0.97440	104.50
104.60	0.97434	0.97427	0.97421	0.97414	0.97408	0.97401	0.97394	0.97388	0.97381	0.97375	104.60
104.70	0.97368	0.97362	0.97355	0.97348	0.97342	0.97335	0.97329	0.97322	0.97316	0.97309	104.70
104.80	0.97303	0.97296	0.97290	0.97283	0.97277	0.97270	0.97263	0.97257	0.97250	0.97244	104.80
104.90	0.97237	0.97231	0.97224	0.97218	0.97211	0.97205	0.97198	0.97192	0.97185	0.97179	104.90
105.00	0.97172	0.97166	0.97159	0.97153	0.97146	0.97140	0.97133	0.97127	0.97120	0.97114	105.00
105.10	0.97107	0.97101	0.97094	0.97088	0.97081	0.97075	0.97068	0.97062	0.97055	0.97049	105.10
105.20	0.97042	0.97036	0.97029	0.97023	0.97017	0.97010	0.97004	0.96997	0.96991	0.96984	105.20
105.30	0.96978	0.96971	0.96965	0.96958	0.96952	0.96945	0.96939	0.96933	0.96926	0.96920	105.30
105.40	0.96913	0.96907	0.96900	0.96894	0.96887	0.96881	0.96875	0.96868	0.96862	0.96855	105.40
105.50	0.96849	0.96842	0.96836	0.96830	0.96823	0.96817	0.96810	0.96804	0.96798	0.96791	105.50
105.60	0.96785	0.96778	0.96772	0.96765	0.96759	0.96753	0.96746	0.96740	0.96733	0.96727	105.60
105.70	0.96721	0.96714	0.96708	0.96701	0.96695	0.96689	0.96682	0.96676	0.96670	0.96663	105.70
105.80	0.96657	0.96650	0.96644	0.96638	0.96631	0.96625	0.96619	0.96612	0.96606	0.96599	105.80
105.90	0.96593	0.96587	0.96580	0.96574	0.96568	0.96561	0.96555	0.96549	0.96542	0.96536	105.90
106.00	0.96530	0.96523	0.96517	0.96510	0.96504	0.96498	0.96491	0.96485	0.96479	0.96472	106.00
106.10	0.96466	0.96460	0.96453	0.96447	0.96441	0.96434	0.96428	0.96422	0.96416	0.96409	106.10
106.20	0.96403	0.96397	0.96390	0.96384	0.96378	0.96371	0.96365	0.96359	0.96352	0.96346	106.20
106.30	0.96340	0.96333	0.96327	0.96321	0.96315	0.96308	0.96302	0.96296	0.96289	0.96283	106.30
106.40	0.96277	0.96271	0.96264	0.96258	0.96252	0.96245	0.96239	0.96233	0.96227	0.96220	106.40
106.50	0.96214	0.96208	0.96202	0.96195	0.96189	0.96183	0.96176	0.96170	0.96164	0.96158	106.50
106.60	0.96151	0.96145	0.96139	0.96133	0.96126	0.96120	0.96114	0.96108	0.96101	0.96095	106.60
106.70	0.96089	0.96083	0.96077	0.96070	0.96064	0.96058	0.96052	0.96045	0.96039	0.96033	106.70
106.80	0.96027	0.96020	0.96014	0.96008	0.96002	0.95996	0.95989	0.95983	0.95977	0.95971	106.80
106.90	0.95965	0.95958	0.95952	0.95946	0.95940	0.95934	0.95927	0.95921	0.95915	0.95909	106.90
107.00	0.95903	0.95896	0.95890	0.95884	0.95878	0.95872	0.95865	0.95859	0.95853	0.95847	107.00
107.10	0.95841	0.95834	0.95828	0.95822	0.95816	0.95810	0.95804	0.95797	0.95791	0.95785	107.10
107.20	0.95779	0.95773	0.95767	0.95760	0.95754	0.95748	0.95742	0.95736	0.95730	0.95724	107.20
107.30	0.95717	0.95711	0.95705	0.95699	0.95693	0.95687	0.95681	0.95674	0.95668	0.95662	107.30
107.40	0.95656	0.95650	0.95644	0.95638	0.95632	0.95625	0.95619	0.95613	0.95607	0.95601	107.40
107.50	0.95595	0.95589	0.95583	0.95576	0.95570	0.95564	0.95558	0.95552	0.95546	0.95540	107.50
107.60	0.95534	0.95528	0.95521	0.95515	0.95509	0.95503	0.95497	0.95491	0.95485	0.95479	107.60
107.70	0.95473	0.95467	0.95461	0.95454	0.95448	0.95442	0.95436	0.95430	0.95424	0.95418	107.70
107.80	0.95412	0.95406	0.95400	0.95394	0.95388	0.95382	0.95376	0.95369	0.95363	0.95357	107.80
107.90	0.95351	0.95345	0.95339	0.95333	0.95327	0.95321	0.95315	0.95309	0.95303	0.95297	107.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
108.00	0.95291	0.95285	0.95279	0.95273	0.95267	0.95261	0.95255	0.95249	0.95243	0.95237	108.00
108.10	0.95230	0.95224	0.95218	0.95212	0.95206	0.95200	0.95194	0.95188	0.95182	0.95176	108.10
108.20	0.95170	0.95164	0.95158	0.95152	0.95146	0.95140	0.95134	0.95128	0.95122	0.95116	108.20
108.30	0.95110	0.95104	0.95098	0.95092	0.95086	0.95080	0.95074	0.95068	0.95062	0.95056	108.30
108.40	0.95050	0.95044	0.95038	0.95032	0.95026	0.95020	0.95014	0.95009	0.95003	0.94997	108.40
108.50	0.94991	0.94985	0.94979	0.94973	0.94967	0.94961	0.94955	0.94949	0.94943	0.94937	108.50
108.60	0.94931	0.94925	0.94919	0.94913	0.94907	0.94901	0.94895	0.94889	0.94883	0.94877	108.60
108.70	0.94872	0.94866	0.94860	0.94854	0.94848	0.94842	0.94836	0.94830	0.94824	0.94818	108.70
108.80	0.94812	0.94806	0.94800	0.94794	0.94789	0.94783	0.94777	0.94771	0.94765	0.94759	108.80
108.90	0.94753	0.94747	0.94741	0.94735	0.94729	0.94724	0.94718	0.94712	0.94706	0.94700	108.90
109.00	0.94694	0.94688	0.94682	0.94676	0.94670	0.94665	0.94659	0.94653	0.94647	0.94641	109.00
109.10	0.94635	0.94629	0.94623	0.94618	0.94612	0.94606	0.94600	0.94594	0.94588	0.94582	109.10
109.20	0.94576	0.94571	0.94565	0.94559	0.94553	0.94547	0.94541	0.94535	0.94530	0.94524	109.20
109.30	0.94518	0.94512	0.94506	0.94500	0.94494	0.94489	0.94483	0.94477	0.94471	0.94465	109.30
109.40	0.94459	0.94454	0.94448	0.94442	0.94436	0.94430	0.94424	0.94419	0.94413	0.94407	109.40
109.50	0.94401	0.94395	0.94390	0.94384	0.94378	0.94372	0.94366	0.94360	0.94355	0.94349	109.50
109.60	0.94343	0.94337	0.94331	0.94326	0.94320	0.94314	0.94308	0.94302	0.94297	0.94291	109.60
109.70	0.94285	0.94279	0.94273	0.94268	0.94262	0.94256	0.94250	0.94244	0.94239	0.94233	109.70
109.80	0.94227	0.94221	0.94216	0.94210	0.94204	0.94198	0.94192	0.94187	0.94181	0.94175	109.80
109.90	0.94169	0.94164	0.94158	0.94152	0.94146	0.94141	0.94135	0.94129	0.94123	0.94118	109.90
110.00	0.94112	0.94106	0.94100	0.94095	0.94089	0.94083	0.94077	0.94072	0.94066	0.94060	110.00
110.10	0.94054	0.94049	0.94043	0.94037	0.94031	0.94026	0.94020	0.94014	0.94009	0.94003	110.10
110.20	0.93997	0.93991	0.93986	0.93980	0.93974	0.93969	0.93963	0.93957	0.93951	0.93946	110.20
110.30	0.93940	0.93934	0.93929	0.93923	0.93917	0.93911	0.93906	0.93900	0.93894	0.93889	110.30
110.40	0.93883	0.93877	0.93872	0.93866	0.93860	0.93854	0.93849	0.93843	0.93837	0.93832	110.40
110.50	0.93826	0.93820	0.93815	0.93809	0.93803	0.93798	0.93792	0.93786	0.93781	0.93775	110.50
110.60	0.93769	0.93764	0.93758	0.93752	0.93747	0.93741	0.93735	0.93730	0.93724	0.93718	110.60
110.70	0.93713	0.93707	0.93701	0.93696	0.93690	0.93685	0.93679	0.93673	0.93668	0.93662	110.70
110.80	0.93656	0.93651	0.93645	0.93639	0.93634	0.93628	0.93622	0.93617	0.93611	0.93606	110.80
110.90	0.93600	0.93594	0.93589	0.93583	0.93577	0.93572	0.93566	0.93561	0.93555	0.93549	110.90
111.00	0.93544	0.93538	0.93533	0.93527	0.93521	0.93516	0.93510	0.93505	0.93499	0.93493	111.00
111.10	0.93488	0.93482	0.93477	0.93471	0.93465	0.93460	0.93454	0.93449	0.93443	0.93437	111.10
111.20	0.93432	0.93426	0.93421	0.93415	0.93410	0.93404	0.93398	0.93393	0.93387	0.93382	111.20
111.30	0.93376	0.93371	0.93365	0.93359	0.93354	0.93348	0.93343	0.93337	0.93332	0.93326	111.30
111.40	0.93320	0.93315	0.93309	0.93304	0.93298	0.93293	0.93287	0.93282	0.93276	0.93271	111.40
111.50	0.93265	0.93259	0.93254	0.93248	0.93243	0.93237	0.93232	0.93226	0.93221	0.93215	111.50
111.60	0.93210	0.93204	0.93199	0.93193	0.93188	0.93182	0.93177	0.93171	0.93165	0.93160	111.60
111.70	0.93154	0.93149	0.93143	0.93138	0.93132	0.93127	0.93121	0.93116	0.93110	0.93105	111.70
111.80	0.93099	0.93094	0.93088	0.93083	0.93077	0.93072	0.93066	0.93061	0.93055	0.93050	111.80
111.90	0.93044	0.93039	0.93033	0.93028	0.93022	0.93017	0.93012	0.93006	0.93001	0.92995	111.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
112.00	0.92990	0.92984	0.92979	0.92973	0.92968	0.92962	0.92957	0.92951	0.92946	0.92940	112.00
112.10	0.92935	0.92930	0.92924	0.92919	0.92913	0.92908	0.92902	0.92897	0.92891	0.92886	112.10
112.20	0.92880	0.92875	0.92870	0.92864	0.92859	0.92853	0.92848	0.92842	0.92837	0.92831	112.20
112.30	0.92826	0.92821	0.92815	0.92810	0.92804	0.92799	0.92793	0.92788	0.92783	0.92777	112.30
112.40	0.92772	0.92766	0.92761	0.92756	0.92750	0.92745	0.92739	0.92734	0.92728	0.92723	112.40
112.50	0.92718	0.92712	0.92707	0.92701	0.92696	0.92691	0.92685	0.92680	0.92674	0.92669	112.50
112.60	0.92664	0.92658	0.92653	0.92647	0.92642	0.92637	0.92631	0.92626	0.92621	0.92615	112.60
112.70	0.92610	0.92604	0.92599	0.92594	0.92588	0.92583	0.92578	0.92572	0.92567	0.92561	112.70
112.80	0.92556	0.92551	0.92545	0.92540	0.92535	0.92529	0.92524	0.92519	0.92513	0.92508	112.80
112.90	0.92502	0.92497	0.92492	0.92486	0.92481	0.92476	0.92470	0.92465	0.92460	0.92454	112.90
113.00	0.92449	0.92444	0.92438	0.92433	0.92428	0.92422	0.92417	0.92412	0.92406	0.92401	113.00
113.10	0.92396	0.92390	0.92385	0.92380	0.92374	0.92369	0.92364	0.92358	0.92353	0.92348	113.10
113.20	0.92342	0.92337	0.92332	0.92327	0.92321	0.92316	0.92311	0.92305	0.92300	0.92295	113.20
113.30	0.92289	0.92284	0.92279	0.92273	0.92268	0.92263	0.92258	0.92252	0.92247	0.92242	113.30
113.40	0.92236	0.92231	0.92226	0.92221	0.92215	0.92210	0.92205	0.92199	0.92194	0.92189	113.40
113.50	0.92184	0.92178	0.92173	0.92168	0.92163	0.92157	0.92152	0.92147	0.92141	0.92136	113.50
113.60	0.92131	0.92126	0.92120	0.92115	0.92110	0.92105	0.92099	0.92094	0.92089	0.92084	113.60
113.70	0.92078	0.92073	0.92068	0.92063	0.92057	0.92052	0.92047	0.92042	0.92036	0.92031	113.70
113.80	0.92026	0.92021	0.92016	0.92010	0.92005	0.92000	0.91995	0.91989	0.91984	0.91979	113.80
113.90	0.91974	0.91968	0.91963	0.91958	0.91953	0.91948	0.91942	0.91937	0.91932	0.91927	113.90
114.00	0.91922	0.91916	0.91911	0.91906	0.91901	0.91896	0.91890	0.91885	0.91880	0.91875	114.00
114.10	0.91870	0.91864	0.91859	0.91854	0.91849	0.91844	0.91838	0.91833	0.91828	0.91823	114.10
114.20	0.91818	0.91812	0.91807	0.91802	0.91797	0.91792	0.91787	0.91781	0.91776	0.91771	114.20
114.30	0.91766	0.91761	0.91756	0.91750	0.91745	0.91740	0.91735	0.91730	0.91725	0.91719	114.30
114.40	0.91714	0.91709	0.91704	0.91699	0.91694	0.91688	0.91683	0.91678	0.91673	0.91668	114.40
114.50	0.91663	0.91658	0.91652	0.91647	0.91642	0.91637	0.91632	0.91627	0.91622	0.91616	114.50
114.60	0.91611	0.91606	0.91601	0.91596	0.91591	0.91586	0.91581	0.91575	0.91570	0.91565	114.60
114.70	0.91560	0.91555	0.91550	0.91545	0.91540	0.91534	0.91529	0.91524	0.91519	0.91514	114.70
114.80	0.91509	0.91504	0.91499	0.91494	0.91488	0.91483	0.91478	0.91473	0.91468	0.91463	114.80
114.90	0.91458	0.91453	0.91448	0.91443	0.91438	0.91432	0.91427	0.91422	0.91417	0.91412	114.90
115.00	0.91407	0.91402	0.91397	0.91392	0.91387	0.91382	0.91377	0.91371	0.91366	0.91361	115.00
115.10	0.91356	0.91351	0.91346	0.91341	0.91336	0.91331	0.91326	0.91321	0.91316	0.91311	115.10
115.20	0.91306	0.91301	0.91296	0.91290	0.91285	0.91280	0.91275	0.91270	0.91265	0.91260	115.20
115.30	0.91255	0.91250	0.91245	0.91240	0.91235	0.91230	0.91225	0.91220	0.91215	0.91210	115.30
115.40	0.91205	0.91200	0.91195	0.91190	0.91185	0.91180	0.91175	0.91170	0.91165	0.91160	115.40
115.50	0.91155	0.91149	0.91144	0.91139	0.91134	0.91129	0.91124	0.91119	0.91114	0.91109	115.50
115.60	0.91104	0.91099	0.91094	0.91089	0.91084	0.91079	0.91074	0.91069	0.91064	0.91059	115.60
115.70	0.91054	0.91049	0.91044	0.91039	0.91034	0.91029	0.91024	0.91019	0.91014	0.91009	115.70
115.80	0.91004	0.91000	0.90995	0.90990	0.90985	0.90980	0.90975	0.90970	0.90965	0.90960	115.80
115.90	0.90955	0.90950	0.90945	0.90940	0.90935	0.90930	0.90925	0.90920	0.90915	0.90910	115.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
116.00	0.90905	0.90900	0.90895	0.90890	0.90885	0.90880	0.90875	0.90870	0.90865	0.90861	116.00
116.10	0.90856	0.90851	0.90846	0.90841	0.90836	0.90831	0.90826	0.90821	0.90816	0.90811	116.10
116.20	0.90806	0.90801	0.90796	0.90791	0.90786	0.90782	0.90777	0.90772	0.90767	0.90762	116.20
116.30	0.90757	0.90752	0.90747	0.90742	0.90737	0.90732	0.90727	0.90723	0.90718	0.90713	116.30
116.40	0.90708	0.90703	0.90698	0.90693	0.90688	0.90683	0.90678	0.90673	0.90669	0.90664	116.40
116.50	0.90659	0.90654	0.90649	0.90644	0.90639	0.90634	0.90629	0.90625	0.90620	0.90615	116.50
116.60	0.90610	0.90605	0.90600	0.90595	0.90590	0.90585	0.90581	0.90576	0.90571	0.90566	116.60
116.70	0.90561	0.90556	0.90551	0.90547	0.90542	0.90537	0.90532	0.90527	0.90522	0.90517	116.70
116.80	0.90512	0.90508	0.90503	0.90498	0.90493	0.90488	0.90483	0.90478	0.90474	0.90469	116.80
116.90	0.90464	0.90459	0.90454	0.90449	0.90445	0.90440	0.90435	0.90430	0.90425	0.90420	116.90
117.00	0.90416	0.90411	0.90406	0.90401	0.90396	0.90391	0.90387	0.90382	0.90377	0.90372	117.00
117.10	0.90367	0.90362	0.90358	0.90353	0.90348	0.90343	0.90338	0.90333	0.90329	0.90324	117.10
117.20	0.90319	0.90314	0.90309	0.90305	0.90300	0.90295	0.90290	0.90285	0.90281	0.90276	117.20
117.30	0.90271	0.90266	0.90261	0.90257	0.90252	0.90247	0.90242	0.90237	0.90233	0.90228	117.30
117.40	0.90223	0.90218	0.90213	0.90209	0.90204	0.90199	0.90194	0.90190	0.90185	0.90180	117.40
117.50	0.90175	0.90170	0.90166	0.90161	0.90156	0.90151	0.90147	0.90142	0.90137	0.90132	117.50
117.60	0.90128	0.90123	0.90118	0.90113	0.90109	0.90104	0.90099	0.90094	0.90089	0.90085	117.60
117.70	0.90080	0.90075	0.90070	0.90066	0.90061	0.90056	0.90052	0.90047	0.90042	0.90037	117.70
117.80	0.90033	0.90028	0.90023	0.90018	0.90014	0.90009	0.90004	0.89999	0.89995	0.89990	117.80
117.90	0.89985	0.89980	0.89976	0.89971	0.89966	0.89962	0.89957	0.89952	0.89947	0.89943	117.90
118.00	0.89938	0.89933	0.89929	0.89924	0.89919	0.89914	0.89910	0.89905	0.89900	0.89896	118.00
118.10	0.89891	0.89886	0.89881	0.89877	0.89872	0.89867	0.89863	0.89858	0.89853	0.89849	118.10
118.20	0.89844	0.89839	0.89835	0.89830	0.89825	0.89820	0.89816	0.89811	0.89806	0.89802	118.20
118.30	0.89797	0.89792	0.89788	0.89783	0.89778	0.89774	0.89769	0.89764	0.89760	0.89755	118.30
118.40	0.89750	0.89746	0.89741	0.89736	0.89732	0.89727	0.89722	0.89718	0.89713	0.89708	118.40
118.50	0.89704	0.89699	0.89694	0.89690	0.89685	0.89680	0.89676	0.89671	0.89666	0.89662	118.50
118.60	0.89657	0.89653	0.89648	0.89643	0.89639	0.89634	0.89629	0.89625	0.89620	0.89615	118.60
118.70	0.89611	0.89606	0.89601	0.89597	0.89592	0.89588	0.89583	0.89578	0.89574	0.89569	118.70
118.80	0.89564	0.89560	0.89555	0.89551	0.89546	0.89541	0.89537	0.89532	0.89528	0.89523	118.80
118.90	0.89518	0.89514	0.89509	0.89504	0.89500	0.89495	0.89491	0.89486	0.89481	0.89477	118.90
119.00	0.89472	0.89468	0.89463	0.89458	0.89454	0.89449	0.89445	0.89440	0.89435	0.89431	119.00
119.10	0.89426	0.89422	0.89417	0.89413	0.89408	0.89403	0.89399	0.89394	0.89390	0.89385	119.10
119.20	0.89380	0.89376	0.89371	0.89367	0.89362	0.89358	0.89353	0.89348	0.89344	0.89339	119.20
119.30	0.89335	0.89330	0.89326	0.89321	0.89317	0.89312	0.89307	0.89303	0.89298	0.89294	119.30
119.40	0.89289	0.89285	0.89280	0.89276	0.89271	0.89266	0.89262	0.89257	0.89253	0.89248	119.40
119.50	0.89244	0.89239	0.89235	0.89230	0.89226	0.89221	0.89216	0.89212	0.89207	0.89203	119.50
119.60	0.89198	0.89194	0.89189	0.89185	0.89180	0.89176	0.89171	0.89167	0.89162	0.89158	119.60
119.70	0.89153	0.89149	0.89144	0.89140	0.89135	0.89131	0.89126	0.89122	0.89117	0.89112	119.70
119.80	0.89108	0.89103	0.89099	0.89094	0.89090	0.89085	0.89081	0.89076	0.89072	0.89067	119.80
119.90	0.89063	0.89058	0.89054	0.89049	0.89045	0.89040	0.89036	0.89032	0.89027	0.89023	119.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
120.00	0.89018	0.89014	0.89009	0.89005	0.89000	0.88996	0.88991	0.88987	0.88982	0.88978	120.00
120.10	0.88973	0.88969	0.88964	0.88960	0.88955	0.88951	0.88946	0.88942	0.88938	0.88933	120.10
120.20	0.88929	0.88924	0.88920	0.88915	0.88911	0.88906	0.88902	0.88897	0.88893	0.88888	120.20
120.30	0.88884	0.88880	0.88875	0.88871	0.88866	0.88862	0.88857	0.88853	0.88848	0.88844	120.30
120.40	0.88840	0.88835	0.88831	0.88826	0.88822	0.88817	0.88813	0.88809	0.88804	0.88800	120.40
120.50	0.88795	0.88791	0.88786	0.88782	0.88778	0.88773	0.88769	0.88764	0.88760	0.88755	120.50
120.60	0.88751	0.88747	0.88742	0.88738	0.88733	0.88729	0.88724	0.88720	0.88716	0.88711	120.60
120.70	0.88707	0.88702	0.88698	0.88694	0.88689	0.88685	0.88680	0.88676	0.88672	0.88667	120.70
120.80	0.88663	0.88658	0.88654	0.88650	0.88645	0.88641	0.88636	0.88632	0.88628	0.88623	120.80
120.90	0.88619	0.88615	0.88610	0.88606	0.88601	0.88597	0.88593	0.88588	0.88584	0.88580	120.90
121.00	0.88575	0.88571	0.88566	0.88562	0.88558	0.88553	0.88549	0.88545	0.88540	0.88536	121.00
121.10	0.88531	0.88527	0.88523	0.88518	0.88514	0.88510	0.88505	0.88501	0.88497	0.88492	121.10
121.20	0.88488	0.88484	0.88479	0.88475	0.88471	0.88466	0.88462	0.88457	0.88453	0.88449	121.20
121.30	0.88444	0.88440	0.88436	0.88431	0.88427	0.88423	0.88418	0.88414	0.88410	0.88405	121.30
121.40	0.88401	0.88397	0.88392	0.88388	0.88384	0.88379	0.88375	0.88371	0.88367	0.88362	121.40
121.50	0.88358	0.88354	0.88349	0.88345	0.88341	0.88336	0.88332	0.88328	0.88323	0.88319	121.50
121.60	0.88315	0.88310	0.88306	0.88302	0.88298	0.88293	0.88289	0.88285	0.88280	0.88276	121.60
121.70	0.88272	0.88267	0.88263	0.88259	0.88255	0.88250	0.88246	0.88242	0.88237	0.88233	121.70
121.80	0.88229	0.88225	0.88220	0.88216	0.88212	0.88207	0.88203	0.88199	0.88195	0.88190	121.80
121.90	0.88186	0.88182	0.88177	0.88173	0.88169	0.88165	0.88160	0.88156	0.88152	0.88148	121.90
122.00	0.88143	0.88139	0.88135	0.88131	0.88126	0.88122	0.88118	0.88114	0.88109	0.88105	122.00
122.10	0.88101	0.88097	0.88092	0.88088	0.88084	0.88080	0.88075	0.88071	0.88067	0.88063	122.10
122.20	0.88058	0.88054	0.88050	0.88046	0.88041	0.88037	0.88033	0.88029	0.88024	0.88020	122.20
122.30	0.88016	0.88012	0.88007	0.88003	0.87999	0.87995	0.87991	0.87986	0.87982	0.87978	122.30
122.40	0.87974	0.87969	0.87965	0.87961	0.87957	0.87953	0.87948	0.87944	0.87940	0.87936	122.40
122.50	0.87932	0.87927	0.87923	0.87919	0.87915	0.87910	0.87906	0.87902	0.87898	0.87894	122.50
122.60	0.87889	0.87885	0.87881	0.87877	0.87873	0.87868	0.87864	0.87860	0.87856	0.87852	122.60
122.70	0.87848	0.87843	0.87839	0.87835	0.87831	0.87827	0.87822	0.87818	0.87814	0.87810	122.70
122.80	0.87806	0.87802	0.87797	0.87793	0.87789	0.87785	0.87781	0.87776	0.87772	0.87768	122.80
122.90	0.87764	0.87760	0.87756	0.87751	0.87747	0.87743	0.87739	0.87735	0.87731	0.87727	122.90
123.00	0.87722	0.87718	0.87714	0.87710	0.87706	0.87702	0.87697	0.87693	0.87689	0.87685	123.00
123.10	0.87681	0.87677	0.87673	0.87668	0.87664	0.87660	0.87656	0.87652	0.87648	0.87644	123.10
123.20	0.87639	0.87635	0.87631	0.87627	0.87623	0.87619	0.87615	0.87611	0.87606	0.87602	123.20
123.30	0.87598	0.87594	0.87590	0.87586	0.87582	0.87578	0.87573	0.87569	0.87565	0.87561	123.30
123.40	0.87557	0.87553	0.87549	0.87545	0.87540	0.87536	0.87532	0.87528	0.87524	0.87520	123.40
123.50	0.87516	0.87512	0.87508	0.87504	0.87499	0.87495	0.87491	0.87487	0.87483	0.87479	123.50
123.60	0.87475	0.87471	0.87467	0.87463	0.87459	0.87454	0.87450	0.87446	0.87442	0.87438	123.60
123.70	0.87434	0.87430	0.87426	0.87422	0.87418	0.87414	0.87410	0.87405	0.87401	0.87397	123.70
123.80	0.87393	0.87389	0.87385	0.87381	0.87377	0.87373	0.87369	0.87365	0.87361	0.87357	123.80
123.90	0.87353	0.87348	0.87344	0.87340	0.87336	0.87332	0.87328	0.87324	0.87320	0.87316	123.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
124.00	0.87312	0.87308	0.87304	0.87300	0.87296	0.87292	0.87288	0.87284	0.87280	0.87276	124.00
124.10	0.87272	0.87267	0.87263	0.87259	0.87255	0.87251	0.87247	0.87243	0.87239	0.87235	124.10
124.20	0.87231	0.87227	0.87223	0.87219	0.87215	0.87211	0.87207	0.87203	0.87199	0.87195	124.20
124.30	0.87191	0.87187	0.87183	0.87179	0.87175	0.87171	0.87167	0.87163	0.87159	0.87155	124.30
124.40	0.87151	0.87147	0.87143	0.87139	0.87135	0.87131	0.87127	0.87123	0.87119	0.87115	124.40
124.50	0.87111	0.87107	0.87103	0.87099	0.87095	0.87091	0.87087	0.87083	0.87079	0.87075	124.50
124.60	0.87071	0.87067	0.87063	0.87059	0.87055	0.87051	0.87047	0.87043	0.87039	0.87035	124.60
124.70	0.87031	0.87027	0.87023	0.87019	0.87015	0.87011	0.87007	0.87003	0.86999	0.86995	124.70
124.80	0.86991	0.86987	0.86983	0.86979	0.86975	0.86971	0.86967	0.86963	0.86959	0.86956	124.80
124.90	0.86952	0.86948	0.86944	0.86940	0.86936	0.86932	0.86928	0.86924	0.86920	0.86916	124.90
125.00	0.86912	0.86908	0.86904	0.86900	0.86896	0.86892	0.86888	0.86884	0.86880	0.86877	125.00
125.10	0.86873	0.86869	0.86865	0.86861	0.86857	0.86853	0.86849	0.86845	0.86841	0.86837	125.10
125.20	0.86833	0.86829	0.86825	0.86821	0.86818	0.86814	0.86810	0.86806	0.86802	0.86798	125.20
125.30	0.86794	0.86790	0.86786	0.86782	0.86778	0.86774	0.86771	0.86767	0.86763	0.86759	125.30
125.40	0.86755	0.86751	0.86747	0.86743	0.86739	0.86735	0.86731	0.86728	0.86724	0.86720	125.40
125.50	0.86716	0.86712	0.86708	0.86704	0.86700	0.86696	0.86693	0.86689	0.86685	0.86681	125.50
125.60	0.86677	0.86673	0.86669	0.86665	0.86661	0.86658	0.86654	0.86650	0.86646	0.86642	125.60
125.70	0.86638	0.86634	0.86630	0.86627	0.86623	0.86619	0.86615	0.86611	0.86607	0.86603	125.70
125.80	0.86599	0.86596	0.86592	0.86588	0.86584	0.86580	0.86576	0.86572	0.86569	0.86565	125.80
125.90	0.86561	0.86557	0.86553	0.86549	0.86545	0.86542	0.86538	0.86534	0.86530	0.86526	125.90
126.00	0.86522	0.86518	0.86515	0.86511	0.86507	0.86503	0.86499	0.86495	0.86492	0.86488	126.00
126.10	0.86484	0.86480	0.86476	0.86472	0.86468	0.86465	0.86461	0.86457	0.86453	0.86449	126.10
126.20	0.86446	0.86442	0.86438	0.86434	0.86430	0.86426	0.86423	0.86419	0.86415	0.86411	126.20
126.30	0.86407	0.86403	0.86400	0.86396	0.86392	0.86388	0.86384	0.86381	0.86377	0.86373	126.30
126.40	0.86369	0.86365	0.86362	0.86358	0.86354	0.86350	0.86346	0.86343	0.86339	0.86335	126.40
126.50	0.86331	0.86327	0.86324	0.86320	0.86316	0.86312	0.86308	0.86305	0.86301	0.86297	126.50
126.60	0.86293	0.86289	0.86286	0.86282	0.86278	0.86274	0.86271	0.86267	0.86263	0.86259	126.60
126.70	0.86255	0.86252	0.86248	0.86244	0.86240	0.86237	0.86233	0.86229	0.86225	0.86221	126.70
126.80	0.86218	0.86214	0.86210	0.86206	0.86203	0.86199	0.86195	0.86191	0.86188	0.86184	126.80
126.90	0.86180	0.86176	0.86173	0.86169	0.86165	0.86161	0.86158	0.86154	0.86150	0.86146	126.90
127.00	0.86143	0.86139	0.86135	0.86131	0.86128	0.86124	0.86120	0.86116	0.86113	0.86109	127.00
127.10	0.86105	0.86101	0.86098	0.86094	0.86090	0.86086	0.86083	0.86079	0.86075	0.86071	127.10
127.20	0.86068	0.86064	0.86060	0.86057	0.86053	0.86049	0.86045	0.86042	0.86038	0.86034	127.20
127.30	0.86031	0.86027	0.86023	0.86019	0.86016	0.86012	0.86008	0.86005	0.86001	0.85997	127.30
127.40	0.85993	0.85990	0.85986	0.85982	0.85979	0.85975	0.85971	0.85967	0.85964	0.85960	127.40
127.50	0.85956	0.85953	0.85949	0.85945	0.85942	0.85938	0.85934	0.85930	0.85927	0.85923	127.50
127.60	0.85919	0.85916	0.85912	0.85908	0.85905	0.85901	0.85897	0.85894	0.85890	0.85886	127.60
127.70	0.85883	0.85879	0.85875	0.85872	0.85868	0.85864	0.85860	0.85857	0.85853	0.85849	127.70
127.80	0.85846	0.85842	0.85838	0.85835	0.85831	0.85827	0.85824	0.85820	0.85816	0.85813	127.80
127.90	0.85809	0.85805	0.85802	0.85798	0.85795	0.85791	0.85787	0.85784	0.85780	0.85776	127.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
128.00	0.85773	0.85769	0.85765	0.85762	0.85758	0.85754	0.85751	0.85747	0.85743	0.85740	128.00
128.10	0.85736	0.85732	0.85729	0.85725	0.85722	0.85718	0.85714	0.85711	0.85707	0.85703	128.10
128.20	0.85700	0.85696	0.85693	0.85689	0.85685	0.85682	0.85678	0.85674	0.85671	0.85667	128.20
128.30	0.85664	0.85660	0.85656	0.85653	0.85649	0.85645	0.85642	0.85638	0.85635	0.85631	128.30
128.40	0.85627	0.85624	0.85620	0.85617	0.85613	0.85609	0.85606	0.85602	0.85598	0.85595	128.40
128.50	0.85591	0.85588	0.85584	0.85580	0.85577	0.85573	0.85570	0.85566	0.85562	0.85559	128.50
128.60	0.85555	0.85552	0.85548	0.85545	0.85541	0.85537	0.85534	0.85530	0.85527	0.85523	128.60
128.70	0.85519	0.85516	0.85512	0.85509	0.85505	0.85501	0.85498	0.85494	0.85491	0.85487	128.70
128.80	0.85484	0.85480	0.85476	0.85473	0.85469	0.85466	0.85462	0.85459	0.85455	0.85451	128.80
128.90	0.85448	0.85444	0.85441	0.85437	0.85434	0.85430	0.85427	0.85423	0.85419	0.85416	128.90
129.00	0.85412	0.85409	0.85405	0.85402	0.85398	0.85395	0.85391	0.85387	0.85384	0.85380	129.00
129.10	0.85377	0.85373	0.85370	0.85366	0.85363	0.85359	0.85356	0.85352	0.85348	0.85345	129.10
129.20	0.85341	0.85338	0.85334	0.85331	0.85327	0.85324	0.85320	0.85317	0.85313	0.85310	129.20
129.30	0.85306	0.85303	0.85299	0.85296	0.85292	0.85288	0.85285	0.85281	0.85278	0.85274	129.30
129.40	0.85271	0.85267	0.85264	0.85260	0.85257	0.85253	0.85250	0.85246	0.85243	0.85239	129.40
129.50	0.85236	0.85232	0.85229	0.85225	0.85222	0.85218	0.85215	0.85211	0.85208	0.85204	129.50
129.60	0.85201	0.85197	0.85194	0.85190	0.85187	0.85183	0.85180	0.85176	0.85173	0.85169	129.60
129.70	0.85166	0.85162	0.85159	0.85155	0.85152	0.85148	0.85145	0.85141	0.85138	0.85134	129.70
129.80	0.85131	0.85127	0.85124	0.85120	0.85117	0.85114	0.85110	0.85107	0.85103	0.85100	129.80
129.90	0.85096	0.85093	0.85089	0.85086	0.85082	0.85079	0.85075	0.85072	0.85068	0.85065	129.90
130.00	0.85062	0.85058	0.85055	0.85051	0.85048	0.85044	0.85041	0.85037	0.85034	0.85030	130.00
130.10	0.85027	0.85023	0.85020	0.85017	0.85013	0.85010	0.85006	0.85003	0.84999	0.84996	130.10
130.20	0.84992	0.84989	0.84986	0.84982	0.84979	0.84975	0.84972	0.84968	0.84965	0.84962	130.20
130.30	0.84958	0.84955	0.84951	0.84948	0.84944	0.84941	0.84937	0.84934	0.84931	0.84927	130.30
130.40	0.84924	0.84920	0.84917	0.84914	0.84910	0.84907	0.84903	0.84900	0.84896	0.84893	130.40
130.50	0.84890	0.84886	0.84883	0.84879	0.84876	0.84873	0.84869	0.84866	0.84862	0.84859	130.50
130.60	0.84855	0.84852	0.84849	0.84845	0.84842	0.84838	0.84835	0.84832	0.84828	0.84825	130.60
130.70	0.84821	0.84818	0.84815	0.84811	0.84808	0.84804	0.84801	0.84798	0.84794	0.84791	130.70
130.80	0.84788	0.84784	0.84781	0.84777	0.84774	0.84771	0.84767	0.84764	0.84760	0.84757	130.80
130.90	0.84754	0.84750	0.84747	0.84744	0.84740	0.84737	0.84733	0.84730	0.84727	0.84723	130.90
131.00	0.84720	0.84717	0.84713	0.84710	0.84707	0.84703	0.84700	0.84696	0.84693	0.84690	131.00
131.10	0.84686	0.84683	0.84680	0.84676	0.84673	0.84670	0.84666	0.84663	0.84659	0.84656	131.10
131.20	0.84653	0.84649	0.84646	0.84643	0.84639	0.84636	0.84633	0.84629	0.84626	0.84623	131.20
131.30	0.84619	0.84616	0.84613	0.84609	0.84606	0.84603	0.84599	0.84596	0.84593	0.84589	131.30
131.40	0.84586	0.84583	0.84579	0.84576	0.84573	0.84569	0.84566	0.84563	0.84559	0.84556	131.40
131.50	0.84553	0.84549	0.84546	0.84543	0.84539	0.84536	0.84533	0.84529	0.84526	0.84523	131.50
131.60	0.84519	0.84516	0.84513	0.84510	0.84506	0.84503	0.84500	0.84496	0.84493	0.84490	131.60
131.70	0.84486	0.84483	0.84480	0.84476	0.84473	0.84470	0.84467	0.84463	0.84460	0.84457	131.70
131.80	0.84453	0.84450	0.84447	0.84443	0.84440	0.84437	0.84434	0.84430	0.84427	0.84424	131.80
131.90	0.84420	0.84417	0.84414	0.84411	0.84407	0.84404	0.84401	0.84397	0.84394	0.84391	131.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
132.00	0.84388	0.84384	0.84381	0.84378	0.84374	0.84371	0.84368	0.84365	0.84361	0.84358	132.00
132.10	0.84355	0.84352	0.84348	0.84345	0.84342	0.84339	0.84335	0.84332	0.84329	0.84325	132.10
132.20	0.84322	0.84319	0.84316	0.84312	0.84309	0.84306	0.84303	0.84299	0.84296	0.84293	132.20
132.30	0.84290	0.84286	0.84283	0.84280	0.84277	0.84273	0.84270	0.84267	0.84264	0.84260	132.30
132.40	0.84257	0.84254	0.84251	0.84247	0.84244	0.84241	0.84238	0.84234	0.84231	0.84228	132.40
132.50	0.84225	0.84222	0.84218	0.84215	0.84212	0.84209	0.84205	0.84202	0.84199	0.84196	132.50
132.60	0.84192	0.84189	0.84186	0.84183	0.84180	0.84176	0.84173	0.84170	0.84167	0.84163	132.60
132.70	0.84160	0.84157	0.84154	0.84151	0.84147	0.84144	0.84141	0.84138	0.84135	0.84131	132.70
132.80	0.84128	0.84125	0.84122	0.84119	0.84115	0.84112	0.84109	0.84106	0.84103	0.84099	132.80
132.90	0.84096	0.84093	0.84090	0.84087	0.84083	0.84080	0.84077	0.84074	0.84071	0.84067	132.90
133.00	0.84064	0.84061	0.84058	0.84055	0.84051	0.84048	0.84045	0.84042	0.84039	0.84036	133.00
133.10	0.84032	0.84029	0.84026	0.84023	0.84020	0.84016	0.84013	0.84010	0.84007	0.84004	133.10
133.20	0.84001	0.83997	0.83994	0.83991	0.83988	0.83985	0.83982	0.83978	0.83975	0.83972	133.20
133.30	0.83969	0.83966	0.83963	0.83959	0.83956	0.83953	0.83950	0.83947	0.83944	0.83940	133.30
133.40	0.83937	0.83934	0.83931	0.83928	0.83925	0.83922	0.83918	0.83915	0.83912	0.83909	133.40
133.50	0.83906	0.83903	0.83899	0.83896	0.83893	0.83890	0.83887	0.83884	0.83881	0.83878	133.50
133.60	0.83874	0.83871	0.83868	0.83865	0.83862	0.83859	0.83856	0.83852	0.83849	0.83846	133.60
133.70	0.83843	0.83840	0.83837	0.83834	0.83831	0.83827	0.83824	0.83821	0.83818	0.83815	133.70
133.80	0.83812	0.83809	0.83806	0.83802	0.83799	0.83796	0.83793	0.83790	0.83787	0.83784	133.80
133.90	0.83781	0.83778	0.83774	0.83771	0.83768	0.83765	0.83762	0.83759	0.83756	0.83753	133.90
134.00	0.83750	0.83746	0.83743	0.83740	0.83737	0.83734	0.83731	0.83728	0.83725	0.83722	134.00
134.10	0.83719	0.83716	0.83712	0.83709	0.83706	0.83703	0.83700	0.83697	0.83694	0.83691	134.10
134.20	0.83688	0.83685	0.83682	0.83678	0.83675	0.83672	0.83669	0.83666	0.83663	0.83660	134.20
134.30	0.83657	0.83654	0.83651	0.83648	0.83645	0.83642	0.83638	0.83635	0.83632	0.83629	134.30
134.40	0.83626	0.83623	0.83620	0.83617	0.83614	0.83611	0.83608	0.83605	0.83602	0.83599	134.40
134.50	0.83596	0.83592	0.83589	0.83586	0.83583	0.83580	0.83577	0.83574	0.83571	0.83568	134.50
134.60	0.83565	0.83562	0.83559	0.83556	0.83553	0.83550	0.83547	0.83544	0.83541	0.83538	134.60
134.70	0.83535	0.83532	0.83528	0.83525	0.83522	0.83519	0.83516	0.83513	0.83510	0.83507	134.70
134.80	0.83504	0.83501	0.83498	0.83495	0.83492	0.83489	0.83486	0.83483	0.83480	0.83477	134.80
134.90	0.83474	0.83471	0.83468	0.83465	0.83462	0.83459	0.83456	0.83453	0.83450	0.83447	134.90
135.00	0.83444	0.83441	0.83438	0.83435	0.83432	0.83429	0.83426	0.83423	0.83420	0.83417	135.00
135.10	0.83414	0.83411	0.83408	0.83405	0.83402	0.83399	0.83396	0.83393	0.83390	0.83387	135.10
135.20	0.83384	0.83381	0.83378	0.83375	0.83372	0.83369	0.83366	0.83363	0.83360	0.83357	135.20
135.30	0.83354	0.83351	0.83348	0.83345	0.83342	0.83339	0.83336	0.83333	0.83330	0.83327	135.30
135.40	0.83324	0.83321	0.83318	0.83315	0.83312	0.83309	0.83306	0.83303	0.83300	0.83297	135.40
135.50	0.83294	0.83291	0.83288	0.83285	0.83282	0.83279	0.83276	0.83273	0.83270	0.83267	135.50
135.60	0.83264	0.83261	0.83258	0.83255	0.83252	0.83249	0.83246	0.83243	0.83241	0.83238	135.60
135.70	0.83235	0.83232	0.83229	0.83226	0.83223	0.83220	0.83217	0.83214	0.83211	0.83208	135.70
135.80	0.83205	0.83202	0.83199	0.83196	0.83193	0.83190	0.83187	0.83184	0.83182	0.83179	135.80
135.90	0.83176	0.83173	0.83170	0.83167	0.83164	0.83161	0.83158	0.83155	0.83152	0.83149	135.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
136.00	0.83146	0.83143	0.83140	0.83138	0.83135	0.83132	0.83129	0.83126	0.83123	0.83120	136.00
136.10	0.83117	0.83114	0.83111	0.83108	0.83105	0.83102	0.83099	0.83097	0.83094	0.83091	136.10
136.20	0.83088	0.83085	0.83082	0.83079	0.83076	0.83073	0.83070	0.83067	0.83065	0.83062	136.20
136.30	0.83059	0.83056	0.83053	0.83050	0.83047	0.83044	0.83041	0.83038	0.83035	0.83033	136.30
136.40	0.83030	0.83027	0.83024	0.83021	0.83018	0.83015	0.83012	0.83009	0.83007	0.83004	136.40
136.50	0.83001	0.82998	0.82995	0.82992	0.82989	0.82986	0.82983	0.82981	0.82978	0.82975	136.50
136.60	0.82972	0.82969	0.82966	0.82963	0.82960	0.82958	0.82955	0.82952	0.82949	0.82946	136.60
136.70	0.82943	0.82940	0.82937	0.82935	0.82932	0.82929	0.82926	0.82923	0.82920	0.82917	136.70
136.80	0.82914	0.82912	0.82909	0.82906	0.82903	0.82900	0.82897	0.82894	0.82892	0.82889	136.80
136.90	0.82886	0.82883	0.82880	0.82877	0.82874	0.82872	0.82869	0.82866	0.82863	0.82860	136.90
137.00	0.82857	0.82854	0.82852	0.82849	0.82846	0.82843	0.82840	0.82837	0.82835	0.82832	137.00
137.10	0.82829	0.82826	0.82823	0.82820	0.82818	0.82815	0.82812	0.82809	0.82806	0.82803	137.10
137.20	0.82801	0.82798	0.82795	0.82792	0.82789	0.82786	0.82784	0.82781	0.82778	0.82775	137.20
137.30	0.82772	0.82769	0.82767	0.82764	0.82761	0.82758	0.82755	0.82752	0.82750	0.82747	137.30
137.40	0.82744	0.82741	0.82738	0.82736	0.82733	0.82730	0.82727	0.82724	0.82722	0.82719	137.40
137.50	0.82716	0.82713	0.82710	0.82708	0.82705	0.82702	0.82699	0.82696	0.82694	0.82691	137.50
137.60	0.82688	0.82685	0.82682	0.82680	0.82677	0.82674	0.82671	0.82668	0.82666	0.82663	137.60
137.70	0.82660	0.82657	0.82654	0.82652	0.82649	0.82646	0.82643	0.82640	0.82638	0.82635	137.70
137.80	0.82632	0.82629	0.82627	0.82624	0.82621	0.82618	0.82615	0.82613	0.82610	0.82607	137.80
137.90	0.82604	0.82602	0.82599	0.82596	0.82593	0.82590	0.82588	0.82585	0.82582	0.82579	137.90
138.00	0.82577	0.82574	0.82571	0.82568	0.82566	0.82563	0.82560	0.82557	0.82554	0.82552	138.00
138.10	0.82549	0.82546	0.82543	0.82541	0.82538	0.82535	0.82532	0.82530	0.82527	0.82524	138.10
138.20	0.82521	0.82519	0.82516	0.82513	0.82510	0.82508	0.82505	0.82502	0.82499	0.82497	138.20
138.30	0.82494	0.82491	0.82489	0.82486	0.82483	0.82480	0.82478	0.82475	0.82472	0.82469	138.30
138.40	0.82467	0.82464	0.82461	0.82458	0.82456	0.82453	0.82450	0.82447	0.82445	0.82442	138.40
138.50	0.82439	0.82437	0.82434	0.82431	0.82428	0.82426	0.82423	0.82420	0.82418	0.82415	138.50
138.60	0.82412	0.82409	0.82407	0.82404	0.82401	0.82399	0.82396	0.82393	0.82390	0.82388	138.60
138.70	0.82385	0.82382	0.82380	0.82377	0.82374	0.82371	0.82369	0.82366	0.82363	0.82361	138.70
138.80	0.82358	0.82355	0.82353	0.82350	0.82347	0.82344	0.82342	0.82339	0.82336	0.82334	138.80
138.90	0.82331	0.82328	0.82326	0.82323	0.82320	0.82317	0.82315	0.82312	0.82309	0.82307	138.90
139.00	0.82304	0.82301	0.82299	0.82296	0.82293	0.82291	0.82288	0.82285	0.82283	0.82280	139.00
139.10	0.82277	0.82275	0.82272	0.82269	0.82267	0.82264	0.82261	0.82258	0.82256	0.82253	139.10
139.20	0.82250	0.82248	0.82245	0.82242	0.82240	0.82237	0.82234	0.82232	0.82229	0.82226	139.20
139.30	0.82224	0.82221	0.82219	0.82216	0.82213	0.82211	0.82208	0.82205	0.82203	0.82200	139.30
139.40	0.82197	0.82195	0.82192	0.82189	0.82187	0.82184	0.82181	0.82179	0.82176	0.82173	139.40
139.50	0.82171	0.82168	0.82165	0.82163	0.82160	0.82158	0.82155	0.82152	0.82150	0.82147	139.50
139.60	0.82144	0.82142	0.82139	0.82136	0.82134	0.82131	0.82129	0.82126	0.82123	0.82121	139.60
139.70	0.82118	0.82115	0.82113	0.82110	0.82108	0.82105	0.82102	0.82100	0.82097	0.82094	139.70
139.80	0.82092	0.82089	0.82087	0.82084	0.82081	0.82079	0.82076	0.82073	0.82071	0.82068	139.80
139.90	0.82066	0.82063	0.82060	0.82058	0.82055	0.82053	0.82050	0.82047	0.82045	0.82042	139.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
140.00	0.82039	0.82037	0.82034	0.82032	0.82029	0.82026	0.82024	0.82021	0.82019	0.82016	140.00
140.10	0.82013	0.82011	0.82008	0.82006	0.82003	0.82000	0.81998	0.81995	0.81993	0.81990	140.10
140.20	0.81988	0.81985	0.81982	0.81980	0.81977	0.81975	0.81972	0.81969	0.81967	0.81964	140.20
140.30	0.81962	0.81959	0.81957	0.81954	0.81951	0.81949	0.81946	0.81944	0.81941	0.81938	140.30
140.40	0.81936	0.81933	0.81931	0.81928	0.81926	0.81923	0.81920	0.81918	0.81915	0.81913	140.40
140.50	0.81910	0.81908	0.81905	0.81902	0.81900	0.81897	0.81895	0.81892	0.81890	0.81887	140.50
140.60	0.81885	0.81882	0.81879	0.81877	0.81874	0.81872	0.81869	0.81867	0.81864	0.81862	140.60
140.70	0.81859	0.81856	0.81854	0.81851	0.81849	0.81846	0.81844	0.81841	0.81839	0.81836	140.70
140.80	0.81834	0.81831	0.81828	0.81826	0.81823	0.81821	0.81818	0.81816	0.81813	0.81811	140.80
140.90	0.81808	0.81806	0.81803	0.81801	0.81798	0.81795	0.81793	0.81790	0.81788	0.81785	140.90
141.00	0.81783	0.81780	0.81778	0.81775	0.81773	0.81770	0.81768	0.81765	0.81763	0.81760	141.00
141.10	0.81758	0.81755	0.81753	0.81750	0.81748	0.81745	0.81743	0.81740	0.81737	0.81735	141.10
141.20	0.81732	0.81730	0.81727	0.81725	0.81722	0.81720	0.81717	0.81715	0.81712	0.81710	141.20
141.30	0.81707	0.81705	0.81702	0.81700	0.81697	0.81695	0.81692	0.81690	0.81687	0.81685	141.30
141.40	0.81682	0.81680	0.81677	0.81675	0.81672	0.81670	0.81667	0.81665	0.81662	0.81660	141.40
141.50	0.81657	0.81655	0.81652	0.81650	0.81648	0.81645	0.81643	0.81640	0.81638	0.81635	141.50
141.60	0.81633	0.81630	0.81628	0.81625	0.81623	0.81620	0.81618	0.81615	0.81613	0.81610	141.60
141.70	0.81608	0.81605	0.81603	0.81600	0.81598	0.81595	0.81593	0.81591	0.81588	0.81586	141.70
141.80	0.81583	0.81581	0.81578	0.81576	0.81573	0.81571	0.81568	0.81566	0.81563	0.81561	141.80
141.90	0.81559	0.81556	0.81554	0.81551	0.81549	0.81546	0.81544	0.81541	0.81539	0.81536	141.90
142.00	0.81534	0.81532	0.81529	0.81527	0.81524	0.81522	0.81519	0.81517	0.81514	0.81512	142.00
142.10	0.81510	0.81507	0.81505	0.81502	0.81500	0.81497	0.81495	0.81492	0.81490	0.81488	142.10
142.20	0.81485	0.81483	0.81480	0.81478	0.81475	0.81473	0.81471	0.81468	0.81466	0.81463	142.20
142.30	0.81461	0.81458	0.81456	0.81454	0.81451	0.81449	0.81446	0.81444	0.81441	0.81439	142.30
142.40	0.81437	0.81434	0.81432	0.81429	0.81427	0.81425	0.81422	0.81420	0.81417	0.81415	142.40
142.50	0.81412	0.81410	0.81408	0.81405	0.81403	0.81400	0.81398	0.81396	0.81393	0.81391	142.50
142.60	0.81388	0.81386	0.81384	0.81381	0.81379	0.81376	0.81374	0.81372	0.81369	0.81367	142.60
142.70	0.81364	0.81362	0.81360	0.81357	0.81355	0.81352	0.81350	0.81348	0.81345	0.81343	142.70
142.80	0.81340	0.81338	0.81336	0.81333	0.81331	0.81329	0.81326	0.81324	0.81321	0.81319	142.80
142.90	0.81317	0.81314	0.81312	0.81309	0.81307	0.81305	0.81302	0.81300	0.81298	0.81295	142.90
143.00	0.81293	0.81290	0.81288	0.81286	0.81283	0.81281	0.81279	0.81276	0.81274	0.81271	143.00
143.10	0.81269	0.81267	0.81264	0.81262	0.81260	0.81257	0.81255	0.81253	0.81250	0.81248	143.10
143.20	0.81245	0.81243	0.81241	0.81238	0.81236	0.81234	0.81231	0.81229	0.81227	0.81224	143.20
143.30	0.81222	0.81220	0.81217	0.81215	0.81213	0.81210	0.81208	0.81206	0.81203	0.81201	143.30
143.40	0.81198	0.81196	0.81194	0.81191	0.81189	0.81187	0.81184	0.81182	0.81180	0.81177	143.40
143.50	0.81175	0.81173	0.81170	0.81168	0.81166	0.81163	0.81161	0.81159	0.81156	0.81154	143.50
143.60	0.81152	0.81149	0.81147	0.81145	0.81142	0.81140	0.81138	0.81135	0.81133	0.81131	143.60
143.70	0.81129	0.81126	0.81124	0.81122	0.81119	0.81117	0.81115	0.81112	0.81110	0.81108	143.70
143.80	0.81105	0.81103	0.81101	0.81098	0.81096	0.81094	0.81091	0.81089	0.81087	0.81085	143.80
143.90	0.81082	0.81080	0.81078	0.81075	0.81073	0.81071	0.81068	0.81066	0.81064	0.81062	143.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
144.00	0.81059	0.81057	0.81055	0.81052	0.81050	0.81048	0.81045	0.81043	0.81041	0.81039	144.00
144.10	0.81036	0.81034	0.81032	0.81029	0.81027	0.81025	0.81023	0.81020	0.81018	0.81016	144.10
144.20	0.81013	0.81011	0.81009	0.81007	0.81004	0.81002	0.81000	0.80997	0.80995	0.80993	144.20
144.30	0.80991	0.80988	0.80986	0.80984	0.80982	0.80979	0.80977	0.80975	0.80972	0.80970	144.30
144.40	0.80968	0.80966	0.80963	0.80961	0.80959	0.80957	0.80954	0.80952	0.80950	0.80947	144.40
144.50	0.80945	0.80943	0.80941	0.80938	0.80936	0.80934	0.80932	0.80929	0.80927	0.80925	144.50
144.60	0.80923	0.80920	0.80918	0.80916	0.80914	0.80911	0.80909	0.80907	0.80905	0.80902	144.60
144.70	0.80900	0.80898	0.80896	0.80893	0.80891	0.80889	0.80887	0.80884	0.80882	0.80880	144.70
144.80	0.80878	0.80875	0.80873	0.80871	0.80869	0.80867	0.80864	0.80862	0.80860	0.80858	144.80
144.90	0.80855	0.80853	0.80851	0.80849	0.80846	0.80844	0.80842	0.80840	0.80838	0.80835	144.90
145.00	0.80833	0.80831	0.80829	0.80826	0.80824	0.80822	0.80820	0.80818	0.80815	0.80813	145.00
145.10	0.80811	0.80809	0.80806	0.80804	0.80802	0.80800	0.80798	0.80795	0.80793	0.80791	145.10
145.20	0.80789	0.80787	0.80784	0.80782	0.80780	0.80778	0.80776	0.80773	0.80771	0.80769	145.20
145.30	0.80767	0.80765	0.80762	0.80760	0.80758	0.80756	0.80754	0.80751	0.80749	0.80747	145.30
145.40	0.80745	0.80743	0.80740	0.80738	0.80736	0.80734	0.80732	0.80729	0.80727	0.80725	145.40
145.50	0.80723	0.80721	0.80718	0.80716	0.80714	0.80712	0.80710	0.80708	0.80705	0.80703	145.50
145.60	0.80701	0.80699	0.80697	0.80694	0.80692	0.80690	0.80688	0.80686	0.80684	0.80681	145.60
145.70	0.80679	0.80677	0.80675	0.80673	0.80671	0.80668	0.80666	0.80664	0.80662	0.80660	145.70
145.80	0.80658	0.80655	0.80653	0.80651	0.80649	0.80647	0.80645	0.80642	0.80640	0.80638	145.80
145.90	0.80636	0.80634	0.80632	0.80629	0.80627	0.80625	0.80623	0.80621	0.80619	0.80617	145.90
146.00	0.80614	0.80612	0.80610	0.80608	0.80606	0.80604	0.80601	0.80599	0.80597	0.80595	146.00
146.10	0.80593	0.80591	0.80589	0.80586	0.80584	0.80582	0.80580	0.80578	0.80576	0.80574	146.10
146.20	0.80571	0.80569	0.80567	0.80565	0.80563	0.80561	0.80559	0.80557	0.80554	0.80552	146.20
146.30	0.80550	0.80548	0.80546	0.80544	0.80542	0.80540	0.80537	0.80535	0.80533	0.80531	146.30
146.40	0.80529	0.80527	0.80525	0.80523	0.80520	0.80518	0.80516	0.80514	0.80512	0.80510	146.40
146.50	0.80508	0.80506	0.80504	0.80501	0.80499	0.80497	0.80495	0.80493	0.80491	0.80489	146.50
146.60	0.80487	0.80485	0.80482	0.80480	0.80478	0.80476	0.80474	0.80472	0.80470	0.80468	146.60
146.70	0.80466	0.80463	0.80461	0.80459	0.80457	0.80455	0.80453	0.80451	0.80449	0.80447	146.70
146.80	0.80445	0.80443	0.80440	0.80438	0.80436	0.80434	0.80432	0.80430	0.80428	0.80426	146.80
146.90	0.80424	0.80422	0.80420	0.80417	0.80415	0.80413	0.80411	0.80409	0.80407	0.80405	146.90
147.00	0.80403	0.80401	0.80399	0.80397	0.80395	0.80393	0.80390	0.80388	0.80386	0.80384	147.00
147.10	0.80382	0.80380	0.80378	0.80376	0.80374	0.80372	0.80370	0.80368	0.80366	0.80364	147.10
147.20	0.80361	0.80359	0.80357	0.80355	0.80353	0.80351	0.80349	0.80347	0.80345	0.80343	147.20
147.30	0.80341	0.80339	0.80337	0.80335	0.80333	0.80331	0.80329	0.80327	0.80324	0.80322	147.30
147.40	0.80320	0.80318	0.80316	0.80314	0.80312	0.80310	0.80308	0.80306	0.80304	0.80302	147.40
147.50	0.80300	0.80298	0.80296	0.80294	0.80292	0.80290	0.80288	0.80286	0.80284	0.80282	147.50
147.60	0.80280	0.80277	0.80275	0.80273	0.80271	0.80269	0.80267	0.80265	0.80263	0.80261	147.60
147.70	0.80259	0.80257	0.80255	0.80253	0.80251	0.80249	0.80247	0.80245	0.80243	0.80241	147.70
147.80	0.80239	0.80237	0.80235	0.80233	0.80231	0.80229	0.80227	0.80225	0.80223	0.80221	147.80
147.90	0.80219	0.80217	0.80215	0.80213	0.80211	0.80209	0.80207	0.80205	0.80203	0.80201	147.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
148.00	0.80199	0.80197	0.80195	0.80193	0.80191	0.80189	0.80187	0.80185	0.80183	0.80181	148.00
148.10	0.80179	0.80177	0.80175	0.80173	0.80171	0.80169	0.80167	0.80165	0.80163	0.80161	148.10
148.20	0.80159	0.80157	0.80155	0.80153	0.80151	0.80149	0.80147	0.80145	0.80143	0.80141	148.20
148.30	0.80139	0.80137	0.80135	0.80133	0.80131	0.80129	0.80127	0.80125	0.80123	0.80121	148.30
148.40	0.80119	0.80117	0.80115	0.80113	0.80111	0.80109	0.80107	0.80105	0.80103	0.80101	148.40
148.50	0.80099	0.80097	0.80095	0.80093	0.80091	0.80089	0.80087	0.80085	0.80083	0.80081	148.50
148.60	0.80080	0.80078	0.80076	0.80074	0.80072	0.80070	0.80068	0.80066	0.80064	0.80062	148.60
148.70	0.80060	0.80058	0.80056	0.80054	0.80052	0.80050	0.80048	0.80046	0.80044	0.80042	148.70
148.80	0.80040	0.80038	0.80036	0.80035	0.80033	0.80031	0.80029	0.80027	0.80025	0.80023	148.80
148.90	0.80021	0.80019	0.80017	0.80015	0.80013	0.80011	0.80009	0.80007	0.80005	0.80003	148.90
149.00	0.80002	0.80000	0.79998	0.79996	0.79994	0.79992	0.79990	0.79988	0.79986	0.79984	149.00
149.10	0.79982	0.79980	0.79978	0.79976	0.79974	0.79973	0.79971	0.79969	0.79967	0.79965	149.10
149.20	0.79963	0.79961	0.79959	0.79957	0.79955	0.79953	0.79951	0.79949	0.79948	0.79946	149.20
149.30	0.79944	0.79942	0.79940	0.79938	0.79936	0.79934	0.79932	0.79930	0.79928	0.79927	149.30
149.40	0.79925	0.79923	0.79921	0.79919	0.79917	0.79915	0.79913	0.79911	0.79909	0.79907	149.40
149.50	0.79906	0.79904	0.79902	0.79900	0.79898	0.79896	0.79894	0.79892	0.79890	0.79889	149.50
149.60	0.79887	0.79885	0.79883	0.79881	0.79879	0.79877	0.79875	0.79873	0.79871	0.79870	149.60
149.70	0.79868	0.79866	0.79864	0.79862	0.79860	0.79858	0.79856	0.79855	0.79853	0.79851	149.70
149.80	0.79849	0.79847	0.79845	0.79843	0.79841	0.79839	0.79838	0.79836	0.79834	0.79832	149.80
149.90	0.79830	0.79828	0.79826	0.79824	0.79823	0.79821	0.79819	0.79817	0.79815	0.79813	149.90
150.00	0.79811	0.79810	0.79808	0.79806	0.79804	0.79802	0.79800	0.79798	0.79797	0.79795	150.00
150.10	0.79793	0.79791	0.79789	0.79787	0.79785	0.79783	0.79782	0.79780	0.79778	0.79776	150.10
150.20	0.79774	0.79772	0.79771	0.79769	0.79767	0.79765	0.79763	0.79761	0.79759	0.79758	150.20
150.30	0.79756	0.79754	0.79752	0.79750	0.79748	0.79747	0.79745	0.79743	0.79741	0.79739	150.30
150.40	0.79737	0.79735	0.79734	0.79732	0.79730	0.79728	0.79726	0.79724	0.79723	0.79721	150.40
150.50	0.79719	0.79717	0.79715	0.79713	0.79712	0.79710	0.79708	0.79706	0.79704	0.79703	150.50
150.60	0.79701	0.79699	0.79697	0.79695	0.79693	0.79692	0.79690	0.79688	0.79686	0.79684	150.60
150.70	0.79682	0.79681	0.79679	0.79677	0.79675	0.79673	0.79672	0.79670	0.79668	0.79666	150.70
150.80	0.79664	0.79663	0.79661	0.79659	0.79657	0.79655	0.79653	0.79652	0.79650	0.79648	150.80
150.90	0.79646	0.79644	0.79643	0.79641	0.79639	0.79637	0.79635	0.79634	0.79632	0.79630	150.90
151.00	0.79628	0.79626	0.79625	0.79623	0.79621	0.79619	0.79617	0.79616	0.79614	0.79612	151.00
151.10	0.79610	0.79609	0.79607	0.79605	0.79603	0.79601	0.79600	0.79598	0.79596	0.79594	151.10
151.20	0.79592	0.79591	0.79589	0.79587	0.79585	0.79584	0.79582	0.79580	0.79578	0.79576	151.20
151.30	0.79575	0.79573	0.79571	0.79569	0.79568	0.79566	0.79564	0.79562	0.79560	0.79559	151.30
151.40	0.79557	0.79555	0.79553	0.79552	0.79550	0.79548	0.79546	0.79545	0.79543	0.79541	151.40
151.50	0.79539	0.79537	0.79536	0.79534	0.79532	0.79530	0.79529	0.79527	0.79525	0.79523	151.50
151.60	0.79522	0.79520	0.79518	0.79516	0.79515	0.79513	0.79511	0.79509	0.79508	0.79506	151.60
151.70	0.79504	0.79502	0.79501	0.79499	0.79497	0.79495	0.79494	0.79492	0.79490	0.79488	151.70
151.80	0.79487	0.79485	0.79483	0.79481	0.79480	0.79478	0.79476	0.79474	0.79473	0.79471	151.80
151.90	0.79469	0.79468	0.79466	0.79464	0.79462	0.79461	0.79459	0.79457	0.79455	0.79454	151.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
152.00	0.79452	0.79450	0.79449	0.79447	0.79445	0.79443	0.79442	0.79440	0.79438	0.79436	152.00
152.10	0.79435	0.79433	0.79431	0.79430	0.79428	0.79426	0.79424	0.79423	0.79421	0.79419	152.10
152.20	0.79418	0.79416	0.79414	0.79412	0.79411	0.79409	0.79407	0.79406	0.79404	0.79402	152.20
152.30	0.79400	0.79399	0.79397	0.79395	0.79394	0.79392	0.79390	0.79388	0.79387	0.79385	152.30
152.40	0.79383	0.79382	0.79380	0.79378	0.79377	0.79375	0.79373	0.79371	0.79370	0.79368	152.40
152.50	0.79366	0.79365	0.79363	0.79361	0.79360	0.79358	0.79356	0.79355	0.79353	0.79351	152.50
152.60	0.79349	0.79348	0.79346	0.79344	0.79343	0.79341	0.79339	0.79338	0.79336	0.79334	152.60
152.70	0.79333	0.79331	0.79329	0.79328	0.79326	0.79324	0.79323	0.79321	0.79319	0.79318	152.70
152.80	0.79316	0.79314	0.79312	0.79311	0.79309	0.79307	0.79306	0.79304	0.79302	0.79301	152.80
152.90	0.79299	0.79297	0.79296	0.79294	0.79292	0.79291	0.79289	0.79287	0.79286	0.79284	152.90
153.00	0.79282	0.79281	0.79279	0.79278	0.79276	0.79274	0.79273	0.79271	0.79269	0.79268	153.00
153.10	0.79266	0.79264	0.79263	0.79261	0.79259	0.79258	0.79256	0.79254	0.79253	0.79251	153.10
153.20	0.79249	0.79248	0.79246	0.79244	0.79243	0.79241	0.79240	0.79238	0.79236	0.79235	153.20
153.30	0.79233	0.79231	0.79230	0.79228	0.79226	0.79225	0.79223	0.79221	0.79220	0.79218	153.30
153.40	0.79217	0.79215	0.79213	0.79212	0.79210	0.79208	0.79207	0.79205	0.79204	0.79202	153.40
153.50	0.79200	0.79199	0.79197	0.79195	0.79194	0.79192	0.79191	0.79189	0.79187	0.79186	153.50
153.60	0.79184	0.79182	0.79181	0.79179	0.79178	0.79176	0.79174	0.79173	0.79171	0.79169	153.60
153.70	0.79168	0.79166	0.79165	0.79163	0.79161	0.79160	0.79158	0.79157	0.79155	0.79153	153.70
153.80	0.79152	0.79150	0.79149	0.79147	0.79145	0.79144	0.79142	0.79141	0.79139	0.79137	153.80
153.90	0.79136	0.79134	0.79133	0.79131	0.79129	0.79128	0.79126	0.79125	0.79123	0.79121	153.90
154.00	0.79120	0.79118	0.79117	0.79115	0.79113	0.79112	0.79110	0.79109	0.79107	0.79105	154.00
154.10	0.79104	0.79102	0.79101	0.79099	0.79097	0.79096	0.79094	0.79093	0.79091	0.79090	154.10
154.20	0.79088	0.79086	0.79085	0.79083	0.79082	0.79080	0.79079	0.79077	0.79075	0.79074	154.20
154.30	0.79072	0.79071	0.79069	0.79067	0.79066	0.79064	0.79063	0.79061	0.79060	0.79058	154.30
154.40	0.79057	0.79055	0.79053	0.79052	0.79050	0.79049	0.79047	0.79046	0.79044	0.79042	154.40
154.50	0.79041	0.79039	0.79038	0.79036	0.79035	0.79033	0.79032	0.79030	0.79028	0.79027	154.50
154.60	0.79025	0.79024	0.79022	0.79021	0.79019	0.79018	0.79016	0.79014	0.79013	0.79011	154.60
154.70	0.79010	0.79008	0.79007	0.79005	0.79004	0.79002	0.79001	0.78999	0.78997	0.78996	154.70
154.80	0.78994	0.78993	0.78991	0.78990	0.78988	0.78987	0.78985	0.78984	0.78982	0.78980	154.80
154.90	0.78979	0.78977	0.78976	0.78974	0.78973	0.78971	0.78970	0.78968	0.78967	0.78965	154.90
155.00	0.78964	0.78962	0.78961	0.78959	0.78958	0.78956	0.78954	0.78953	0.78951	0.78950	155.00
155.10	0.78948	0.78947	0.78945	0.78944	0.78942	0.78941	0.78939	0.78938	0.78936	0.78935	155.10
155.20	0.78933	0.78932	0.78930	0.78929	0.78927	0.78926	0.78924	0.78923	0.78921	0.78920	155.20
155.30	0.78918	0.78917	0.78915	0.78914	0.78912	0.78911	0.78909	0.78908	0.78906	0.78905	155.30
155.40	0.78903	0.78902	0.78900	0.78899	0.78897	0.78896	0.78894	0.78893	0.78891	0.78890	155.40
155.50	0.78888	0.78887	0.78885	0.78884	0.78882	0.78881	0.78879	0.78878	0.78876	0.78875	155.50
155.60	0.78873	0.78872	0.78870	0.78869	0.78867	0.78866	0.78864	0.78863	0.78861	0.78860	155.60
155.70	0.78858	0.78857	0.78855	0.78854	0.78852	0.78851	0.78849	0.78848	0.78846	0.78845	155.70
155.80	0.78844	0.78842	0.78841	0.78839	0.78838	0.78836	0.78835	0.78833	0.78832	0.78830	155.80
155.90	0.78829	0.78827	0.78826	0.78824	0.78823	0.78821	0.78820	0.78819	0.78817	0.78816	155.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
156.00	0.78814	0.78813	0.78811	0.78810	0.78808	0.78807	0.78805	0.78804	0.78803	0.78801	156.00
156.10	0.78800	0.78798	0.78797	0.78795	0.78794	0.78792	0.78791	0.78789	0.78788	0.78787	156.10
156.20	0.78785	0.78784	0.78782	0.78781	0.78779	0.78778	0.78776	0.78775	0.78774	0.78772	156.20
156.30	0.78771	0.78769	0.78768	0.78766	0.78765	0.78763	0.78762	0.78761	0.78759	0.78758	156.30
156.40	0.78756	0.78755	0.78753	0.78752	0.78750	0.78749	0.78748	0.78746	0.78745	0.78743	156.40
156.50	0.78742	0.78740	0.78739	0.78738	0.78736	0.78735	0.78733	0.78732	0.78730	0.78729	156.50
156.60	0.78728	0.78726	0.78725	0.78723	0.78722	0.78721	0.78719	0.78718	0.78716	0.78715	156.60
156.70	0.78713	0.78712	0.78711	0.78709	0.78708	0.78706	0.78705	0.78704	0.78702	0.78701	156.70
156.80	0.78699	0.78698	0.78696	0.78695	0.78694	0.78692	0.78691	0.78689	0.78688	0.78687	156.80
156.90	0.78685	0.78684	0.78682	0.78681	0.78680	0.78678	0.78677	0.78675	0.78674	0.78673	156.90
157.00	0.78671	0.78670	0.78668	0.78667	0.78666	0.78664	0.78663	0.78661	0.78660	0.78659	157.00
157.10	0.78657	0.78656	0.78655	0.78653	0.78652	0.78650	0.78649	0.78648	0.78646	0.78645	157.10
157.20	0.78643	0.78642	0.78641	0.78639	0.78638	0.78637	0.78635	0.78634	0.78632	0.78631	157.20
157.30	0.78630	0.78628	0.78627	0.78626	0.78624	0.78623	0.78621	0.78620	0.78619	0.78617	157.30
157.40	0.78616	0.78615	0.78613	0.78612	0.78610	0.78609	0.78608	0.78606	0.78605	0.78604	157.40
157.50	0.78602	0.78601	0.78599	0.78598	0.78597	0.78595	0.78594	0.78593	0.78591	0.78590	157.50
157.60	0.78589	0.78587	0.78586	0.78585	0.78583	0.78582	0.78580	0.78579	0.78578	0.78576	157.60
157.70	0.78575	0.78574	0.78572	0.78571	0.78570	0.78568	0.78567	0.78566	0.78564	0.78563	157.70
157.80	0.78562	0.78560	0.78559	0.78558	0.78556	0.78555	0.78554	0.78552	0.78551	0.78549	157.80
157.90	0.78548	0.78547	0.78545	0.78544	0.78543	0.78541	0.78540	0.78539	0.78537	0.78536	157.90
158.00	0.78535	0.78533	0.78532	0.78531	0.78529	0.78528	0.78527	0.78525	0.78524	0.78523	158.00
158.10	0.78522	0.78520	0.78519	0.78518	0.78516	0.78515	0.78514	0.78512	0.78511	0.78510	158.10
158.20	0.78508	0.78507	0.78506	0.78504	0.78503	0.78502	0.78500	0.78499	0.78498	0.78496	158.20
158.30	0.78495	0.78494	0.78493	0.78491	0.78490	0.78489	0.78487	0.78486	0.78485	0.78483	158.30
158.40	0.78482	0.78481	0.78479	0.78478	0.78477	0.78476	0.78474	0.78473	0.78472	0.78470	158.40
158.50	0.78469	0.78468	0.78466	0.78465	0.78464	0.78463	0.78461	0.78460	0.78459	0.78457	158.50
158.60	0.78456	0.78455	0.78453	0.78452	0.78451	0.78450	0.78448	0.78447	0.78446	0.78444	158.60
158.70	0.78443	0.78442	0.78441	0.78439	0.78438	0.78437	0.78435	0.78434	0.78433	0.78432	158.70
158.80	0.78430	0.78429	0.78428	0.78426	0.78425	0.78424	0.78423	0.78421	0.78420	0.78419	158.80
158.90	0.78418	0.78416	0.78415	0.78414	0.78412	0.78411	0.78410	0.78409	0.78407	0.78406	158.90
159.00	0.78405	0.78404	0.78402	0.78401	0.78400	0.78398	0.78397	0.78396	0.78395	0.78393	159.00
159.10	0.78392	0.78391	0.78390	0.78388	0.78387	0.78386	0.78385	0.78383	0.78382	0.78381	159.10
159.20	0.78380	0.78378	0.78377	0.78376	0.78375	0.78373	0.78372	0.78371	0.78370	0.78368	159.20
159.30	0.78367	0.78366	0.78365	0.78363	0.78362	0.78361	0.78360	0.78358	0.78357	0.78356	159.30
159.40	0.78355	0.78353	0.78352	0.78351	0.78350	0.78348	0.78347	0.78346	0.78345	0.78343	159.40
159.50	0.78342	0.78341	0.78340	0.78338	0.78337	0.78336	0.78335	0.78334	0.78332	0.78331	159.50
159.60	0.78330	0.78329	0.78327	0.78326	0.78325	0.78324	0.78322	0.78321	0.78320	0.78319	159.60
159.70	0.78318	0.78316	0.78315	0.78314	0.78313	0.78311	0.78310	0.78309	0.78308	0.78307	159.70
159.80	0.78305	0.78304	0.78303	0.78302	0.78301	0.78299	0.78298	0.78297	0.78296	0.78294	159.80
159.90	0.78293	0.78292	0.78291	0.78290	0.78288	0.78287	0.78286	0.78285	0.78284	0.78282	159.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
160.00	0.78281	0.78280	0.78279	0.78278	0.78276	0.78275	0.78274	0.78273	0.78272	0.78270	160.00
160.10	0.78269	0.78268	0.78267	0.78266	0.78264	0.78263	0.78262	0.78261	0.78260	0.78258	160.10
160.20	0.78257	0.78256	0.78255	0.78254	0.78252	0.78251	0.78250	0.78249	0.78248	0.78247	160.20
160.30	0.78245	0.78244	0.78243	0.78242	0.78241	0.78239	0.78238	0.78237	0.78236	0.78235	160.30
160.40	0.78233	0.78232	0.78231	0.78230	0.78229	0.78228	0.78226	0.78225	0.78224	0.78223	160.40
160.50	0.78222	0.78221	0.78219	0.78218	0.78217	0.78216	0.78215	0.78214	0.78212	0.78211	160.50
160.60	0.78210	0.78209	0.78208	0.78207	0.78205	0.78204	0.78203	0.78202	0.78201	0.78200	160.60
160.70	0.78198	0.78197	0.78196	0.78195	0.78194	0.78193	0.78191	0.78190	0.78189	0.78188	160.70
160.80	0.78187	0.78186	0.78185	0.78183	0.78182	0.78181	0.78180	0.78179	0.78178	0.78176	160.80
160.90	0.78175	0.78174	0.78173	0.78172	0.78171	0.78170	0.78168	0.78167	0.78166	0.78165	160.90
161.00	0.78164	0.78163	0.78162	0.78160	0.78159	0.78158	0.78157	0.78156	0.78155	0.78154	161.00
161.10	0.78152	0.78151	0.78150	0.78149	0.78148	0.78147	0.78146	0.78145	0.78143	0.78142	161.10
161.20	0.78141	0.78140	0.78139	0.78138	0.78137	0.78136	0.78134	0.78133	0.78132	0.78131	161.20
161.30	0.78130	0.78129	0.78128	0.78127	0.78125	0.78124	0.78123	0.78122	0.78121	0.78120	161.30
161.40	0.78119	0.78118	0.78116	0.78115	0.78114	0.78113	0.78112	0.78111	0.78110	0.78109	161.40
161.50	0.78108	0.78106	0.78105	0.78104	0.78103	0.78102	0.78101	0.78100	0.78099	0.78098	161.50
161.60	0.78097	0.78095	0.78094	0.78093	0.78092	0.78091	0.78090	0.78089	0.78088	0.78087	161.60
161.70	0.78086	0.78084	0.78083	0.78082	0.78081	0.78080	0.78079	0.78078	0.78077	0.78076	161.70
161.80	0.78075	0.78073	0.78072	0.78071	0.78070	0.78069	0.78068	0.78067	0.78066	0.78065	161.80
161.90	0.78064	0.78063	0.78062	0.78060	0.78059	0.78058	0.78057	0.78056	0.78055	0.78054	161.90
162.00	0.78053	0.78052	0.78051	0.78050	0.78049	0.78047	0.78046	0.78045	0.78044	0.78043	162.00
162.10	0.78042	0.78041	0.78040	0.78039	0.78038	0.78037	0.78036	0.78035	0.78034	0.78032	162.10
162.20	0.78031	0.78030	0.78029	0.78028	0.78027	0.78026	0.78025	0.78024	0.78023	0.78022	162.20
162.30	0.78021	0.78020	0.78019	0.78018	0.78017	0.78015	0.78014	0.78013	0.78012	0.78011	162.30
162.40	0.78010	0.78009	0.78008	0.78007	0.78006	0.78005	0.78004	0.78003	0.78002	0.78001	162.40
162.50	0.78000	0.77999	0.77998	0.77997	0.77996	0.77994	0.77993	0.77992	0.77991	0.77990	162.50
162.60	0.77989	0.77988	0.77987	0.77986	0.77985	0.77984	0.77983	0.77982	0.77981	0.77980	162.60
162.70	0.77979	0.77978	0.77977	0.77976	0.77975	0.77974	0.77973	0.77972	0.77971	0.77970	162.70
162.80	0.77969	0.77968	0.77966	0.77965	0.77964	0.77963	0.77962	0.77961	0.77960	0.77959	162.80
162.90	0.77958	0.77957	0.77956	0.77955	0.77954	0.77953	0.77952	0.77951	0.77950	0.77949	162.90
163.00	0.77948	0.77947	0.77946	0.77945	0.77944	0.77943	0.77942	0.77941	0.77940	0.77939	163.00
163.10	0.77938	0.77937	0.77936	0.77935	0.77934	0.77933	0.77932	0.77931	0.77930	0.77929	163.10
163.20	0.77928	0.77927	0.77926	0.77925	0.77924	0.77923	0.77922	0.77921	0.77920	0.77919	163.20
163.30	0.77918	0.77917	0.77916	0.77915	0.77914	0.77913	0.77912	0.77911	0.77910	0.77909	163.30
163.40	0.77908	0.77907	0.77906	0.77905	0.77904	0.77903	0.77902	0.77901	0.77900	0.77899	163.40
163.50	0.77898	0.77897	0.77896	0.77895	0.77894	0.77893	0.77892	0.77891	0.77890	0.77889	163.50
163.60	0.77888	0.77887	0.77886	0.77885	0.77884	0.77883	0.77882	0.77881	0.77880	0.77879	163.60
163.70	0.77878	0.77877	0.77877	0.77876	0.77875	0.77874	0.77873	0.77872	0.77871	0.77870	163.70
163.80	0.77869	0.77868	0.77867	0.77866	0.77865	0.77864	0.77863	0.77862	0.77861	0.77860	163.80
163.90	0.77859	0.77858	0.77857	0.77856	0.77855	0.77854	0.77853	0.77852	0.77851	0.77850	163.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
164.00	0.77850	0.77849	0.77848	0.77847	0.77846	0.77845	0.77844	0.77843	0.77842	0.77841	164.00
164.10	0.77840	0.77839	0.77838	0.77837	0.77836	0.77835	0.77834	0.77833	0.77832	0.77831	164.10
164.20	0.77831	0.77830	0.77829	0.77828	0.77827	0.77826	0.77825	0.77824	0.77823	0.77822	164.20
164.30	0.77821	0.77820	0.77819	0.77818	0.77817	0.77816	0.77816	0.77815	0.77814	0.77813	164.30
164.40	0.77812	0.77811	0.77810	0.77809	0.77808	0.77807	0.77806	0.77805	0.77804	0.77803	164.40
164.50	0.77803	0.77802	0.77801	0.77800	0.77799	0.77798	0.77797	0.77796	0.77795	0.77794	164.50
164.60	0.77793	0.77792	0.77792	0.77791	0.77790	0.77789	0.77788	0.77787	0.77786	0.77785	164.60
164.70	0.77784	0.77783	0.77782	0.77781	0.77781	0.77780	0.77779	0.77778	0.77777	0.77776	164.70
164.80	0.77775	0.77774	0.77773	0.77772	0.77771	0.77771	0.77770	0.77769	0.77768	0.77767	164.80
164.90	0.77766	0.77765	0.77764	0.77763	0.77762	0.77762	0.77761	0.77760	0.77759	0.77758	164.90
165.00	0.77757	0.77756	0.77755	0.77754	0.77754	0.77753	0.77752	0.77751	0.77750	0.77749	165.00
165.10	0.77748	0.77747	0.77746	0.77746	0.77745	0.77744	0.77743	0.77742	0.77741	0.77740	165.10
165.20	0.77739	0.77738	0.77738	0.77737	0.77736	0.77735	0.77734	0.77733	0.77732	0.77731	165.20
165.30	0.77731	0.77730	0.77729	0.77728	0.77727	0.77726	0.77725	0.77724	0.77724	0.77723	165.30
165.40	0.77722	0.77721	0.77720	0.77719	0.77718	0.77718	0.77717	0.77716	0.77715	0.77714	165.40
165.50	0.77713	0.77712	0.77711	0.77711	0.77710	0.77709	0.77708	0.77707	0.77706	0.77705	165.50
165.60	0.77705	0.77704	0.77703	0.77702	0.77701	0.77700	0.77699	0.77699	0.77698	0.77697	165.60
165.70	0.77696	0.77695	0.77694	0.77694	0.77693	0.77692	0.77691	0.77690	0.77689	0.77688	165.70
165.80	0.77688	0.77687	0.77686	0.77685	0.77684	0.77683	0.77683	0.77682	0.77681	0.77680	165.80
165.90	0.77679	0.77678	0.77678	0.77677	0.77676	0.77675	0.77674	0.77673	0.77673	0.77672	165.90
166.00	0.77671	0.77670	0.77669	0.77668	0.77668	0.77667	0.77666	0.77665	0.77664	0.77663	166.00
166.10	0.77663	0.77662	0.77661	0.77660	0.77659	0.77658	0.77658	0.77657	0.77656	0.77655	166.10
166.20	0.77654	0.77654	0.77653	0.77652	0.77651	0.77650	0.77649	0.77649	0.77648	0.77647	166.20
166.30	0.77646	0.77645	0.77645	0.77644	0.77643	0.77642	0.77641	0.77640	0.77640	0.77639	166.30
166.40	0.77638	0.77637	0.77636	0.77636	0.77635	0.77634	0.77633	0.77632	0.77632	0.77631	166.40
166.50	0.77630	0.77629	0.77628	0.77628	0.77627	0.77626	0.77625	0.77624	0.77624	0.77623	166.50
166.60	0.77622	0.77621	0.77620	0.77620	0.77619	0.77618	0.77617	0.77616	0.77616	0.77615	166.60
166.70	0.77614	0.77613	0.77613	0.77612	0.77611	0.77610	0.77609	0.77609	0.77608	0.77607	166.70
166.80	0.77606	0.77605	0.77605	0.77604	0.77603	0.77602	0.77602	0.77601	0.77600	0.77599	166.80
166.90	0.77598	0.77598	0.77597	0.77596	0.77595	0.77595	0.77594	0.77593	0.77592	0.77591	166.90
167.00	0.77591	0.77590	0.77589	0.77588	0.77588	0.77587	0.77586	0.77585	0.77585	0.77584	167.00
167.10	0.77583	0.77582	0.77581	0.77581	0.77580	0.77579	0.77578	0.77578	0.77577	0.77576	167.10
167.20	0.77575	0.77575	0.77574	0.77573	0.77572	0.77572	0.77571	0.77570	0.77569	0.77569	167.20
167.30	0.77568	0.77567	0.77566	0.77566	0.77565	0.77564	0.77563	0.77563	0.77562	0.77561	167.30
167.40	0.77560	0.77560	0.77559	0.77558	0.77557	0.77557	0.77556	0.77555	0.77554	0.77554	167.40
167.50	0.77553	0.77552	0.77551	0.77551	0.77550	0.77549	0.77548	0.77548	0.77547	0.77546	167.50
167.60	0.77545	0.77545	0.77544	0.77543	0.77543	0.77542	0.77541	0.77540	0.77540	0.77539	167.60
167.70	0.77538	0.77537	0.77537	0.77536	0.77535	0.77535	0.77534	0.77533	0.77532	0.77532	167.70
167.80	0.77531	0.77530	0.77529	0.77529	0.77528	0.77527	0.77527	0.77526	0.77525	0.77524	167.80
167.90	0.77524	0.77523	0.77522	0.77522	0.77521	0.77520	0.77519	0.77519	0.77518	0.77517	167.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
168.00	0.77517	0.77516	0.77515	0.77514	0.77514	0.77513	0.77512	0.77512	0.77511	0.77510	168.00
168.10	0.77509	0.77509	0.77508	0.77507	0.77507	0.77506	0.77505	0.77505	0.77504	0.77503	168.10
168.20	0.77502	0.77502	0.77501	0.77500	0.77500	0.77499	0.77498	0.77498	0.77497	0.77496	168.20
168.30	0.77495	0.77495	0.77494	0.77493	0.77493	0.77492	0.77491	0.77491	0.77490	0.77489	168.30
168.40	0.77489	0.77488	0.77487	0.77487	0.77486	0.77485	0.77484	0.77484	0.77483	0.77482	168.40
168.50	0.77482	0.77481	0.77480	0.77480	0.77479	0.77478	0.77478	0.77477	0.77476	0.77476	168.50
168.60	0.77475	0.77474	0.77474	0.77473	0.77472	0.77472	0.77471	0.77470	0.77470	0.77469	168.60
168.70	0.77468	0.77468	0.77467	0.77466	0.77466	0.77465	0.77464	0.77464	0.77463	0.77462	168.70
168.80	0.77462	0.77461	0.77460	0.77460	0.77459	0.77458	0.77458	0.77457	0.77456	0.77456	168.80
168.90	0.77455	0.77454	0.77454	0.77453	0.77452	0.77452	0.77451	0.77450	0.77450	0.77449	168.90
169.00	0.77448	0.77448	0.77447	0.77447	0.77446	0.77445	0.77445	0.77444	0.77443	0.77443	169.00
169.10	0.77442	0.77441	0.77441	0.77440	0.77439	0.77439	0.77438	0.77437	0.77437	0.77436	169.10
169.20	0.77436	0.77435	0.77434	0.77434	0.77433	0.77432	0.77432	0.77431	0.77430	0.77430	169.20
169.30	0.77429	0.77429	0.77428	0.77427	0.77427	0.77426	0.77425	0.77425	0.77424	0.77424	169.30
169.40	0.77423	0.77422	0.77422	0.77421	0.77420	0.77420	0.77419	0.77419	0.77418	0.77417	169.40
169.50	0.77417	0.77416	0.77415	0.77415	0.77414	0.77414	0.77413	0.77412	0.77412	0.77411	169.50
169.60	0.77410	0.77410	0.77409	0.77409	0.77408	0.77407	0.77407	0.77406	0.77406	0.77405	169.60
169.70	0.77404	0.77404	0.77403	0.77403	0.77402	0.77401	0.77401	0.77400	0.77400	0.77399	169.70
169.80	0.77398	0.77398	0.77397	0.77397	0.77396	0.77395	0.77395	0.77394	0.77394	0.77393	169.80
169.90	0.77392	0.77392	0.77391	0.77391	0.77390	0.77389	0.77389	0.77388	0.77388	0.77387	169.90
170.00	0.77386	0.77386	0.77385	0.77385	0.77384	0.77383	0.77383	0.77382	0.77382	0.77381	170.00
170.10	0.77381	0.77380	0.77379	0.77379	0.77378	0.77378	0.77377	0.77376	0.77376	0.77375	170.10
170.20	0.77375	0.77374	0.77374	0.77373	0.77372	0.77372	0.77371	0.77371	0.77370	0.77369	170.20
170.30	0.77369	0.77368	0.77368	0.77367	0.77367	0.77366	0.77365	0.77365	0.77364	0.77364	170.30
170.40	0.77363	0.77363	0.77362	0.77362	0.77361	0.77360	0.77360	0.77359	0.77359	0.77358	170.40
170.50	0.77358	0.77357	0.77356	0.77356	0.77355	0.77355	0.77354	0.77354	0.77353	0.77353	170.50
170.60	0.77352	0.77351	0.77351	0.77350	0.77350	0.77349	0.77349	0.77348	0.77348	0.77347	170.60
170.70	0.77346	0.77346	0.77345	0.77345	0.77344	0.77344	0.77343	0.77343	0.77342	0.77342	170.70
170.80	0.77341	0.77340	0.77340	0.77339	0.77339	0.77338	0.77338	0.77337	0.77337	0.77336	170.80
170.90	0.77336	0.77335	0.77335	0.77334	0.77333	0.77333	0.77332	0.77332	0.77331	0.77331	170.90
171.00	0.77330	0.77330	0.77329	0.77329	0.77328	0.77328	0.77327	0.77327	0.77326	0.77326	171.00
171.10	0.77325	0.77324	0.77324	0.77323	0.77323	0.77322	0.77322	0.77321	0.77321	0.77320	171.10
171.20	0.77320	0.77319	0.77319	0.77318	0.77318	0.77317	0.77317	0.77316	0.77316	0.77315	171.20
171.30	0.77315	0.77314	0.77314	0.77313	0.77313	0.77312	0.77312	0.77311	0.77311	0.77310	171.30
171.40	0.77310	0.77309	0.77309	0.77308	0.77307	0.77307	0.77306	0.77306	0.77305	0.77305	171.40
171.50	0.77304	0.77304	0.77303	0.77303	0.77302	0.77302	0.77301	0.77301	0.77300	0.77300	171.50
171.60	0.77299	0.77299	0.77298	0.77298	0.77298	0.77297	0.77297	0.77296	0.77296	0.77295	171.60
171.70	0.77295	0.77294	0.77294	0.77293	0.77293	0.77292	0.77292	0.77291	0.77291	0.77290	171.70
171.80	0.77290	0.77289	0.77289	0.77288	0.77288	0.77287	0.77287	0.77286	0.77286	0.77285	171.80
171.90	0.77285	0.77284	0.77284	0.77283	0.77283	0.77283	0.77282	0.77282	0.77281	0.77281	171.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
172.00	0.77280	0.77280	0.77279	0.77279	0.77278	0.77278	0.77277	0.77277	0.77276	0.77276	172.00
172.10	0.77275	0.77275	0.77275	0.77274	0.77274	0.77273	0.77273	0.77272	0.77272	0.77271	172.10
172.20	0.77271	0.77270	0.77270	0.77269	0.77269	0.77269	0.77268	0.77268	0.77267	0.77267	172.20
172.30	0.77266	0.77266	0.77265	0.77265	0.77264	0.77264	0.77264	0.77263	0.77263	0.77262	172.30
172.40	0.77262	0.77261	0.77261	0.77260	0.77260	0.77260	0.77259	0.77259	0.77258	0.77258	172.40
172.50	0.77257	0.77257	0.77256	0.77256	0.77256	0.77255	0.77255	0.77254	0.77254	0.77253	172.50
172.60	0.77253	0.77252	0.77252	0.77252	0.77251	0.77251	0.77250	0.77250	0.77249	0.77249	172.60
172.70	0.77249	0.77248	0.77248	0.77247	0.77247	0.77246	0.77246	0.77246	0.77245	0.77245	172.70
172.80	0.77244	0.77244	0.77243	0.77243	0.77243	0.77242	0.77242	0.77241	0.77241	0.77241	172.80
172.90	0.77240	0.77240	0.77239	0.77239	0.77238	0.77238	0.77238	0.77237	0.77237	0.77236	172.90
173.00	0.77236	0.77236	0.77235	0.77235	0.77234	0.77234	0.77233	0.77233	0.77233	0.77232	173.00
173.10	0.77232	0.77231	0.77231	0.77231	0.77230	0.77230	0.77229	0.77229	0.77229	0.77228	173.10
173.20	0.77228	0.77227	0.77227	0.77227	0.77226	0.77226	0.77225	0.77225	0.77225	0.77224	173.20
173.30	0.77224	0.77223	0.77223	0.77223	0.77222	0.77222	0.77222	0.77221	0.77221	0.77220	173.30
173.40	0.77220	0.77220	0.77219	0.77219	0.77218	0.77218	0.77218	0.77217	0.77217	0.77216	173.40
173.50	0.77216	0.77216	0.77215	0.77215	0.77215	0.77214	0.77214	0.77213	0.77213	0.77213	173.50
173.60	0.77212	0.77212	0.77212	0.77211	0.77211	0.77210	0.77210	0.77210	0.77209	0.77209	173.60
173.70	0.77209	0.77208	0.77208	0.77207	0.77207	0.77207	0.77206	0.77206	0.77206	0.77205	173.70
173.80	0.77205	0.77205	0.77204	0.77204	0.77203	0.77203	0.77203	0.77202	0.77202	0.77202	173.80
173.90	0.77201	0.77201	0.77201	0.77200	0.77200	0.77199	0.77199	0.77199	0.77198	0.77198	173.90
174.00	0.77198	0.77197	0.77197	0.77197	0.77196	0.77196	0.77196	0.77195	0.77195	0.77195	174.00
174.10	0.77194	0.77194	0.77194	0.77193	0.77193	0.77192	0.77192	0.77192	0.77191	0.77191	174.10
174.20	0.77191	0.77190	0.77190	0.77190	0.77189	0.77189	0.77189	0.77188	0.77188	0.77188	174.20
174.30	0.77187	0.77187	0.77187	0.77186	0.77186	0.77186	0.77185	0.77185	0.77185	0.77184	174.30
174.40	0.77184	0.77184	0.77183	0.77183	0.77183	0.77182	0.77182	0.77182	0.77181	0.77181	174.40
174.50	0.77181	0.77180	0.77180	0.77180	0.77179	0.77179	0.77179	0.77179	0.77178	0.77178	174.50
174.60	0.77178	0.77177	0.77177	0.77177	0.77176	0.77176	0.77176	0.77175	0.77175	0.77175	174.60
174.70	0.77174	0.77174	0.77174	0.77173	0.77173	0.77173	0.77173	0.77172	0.77172	0.77172	174.70
174.80	0.77171	0.77171	0.77171	0.77170	0.77170	0.77170	0.77170	0.77169	0.77169	0.77169	174.80
174.90	0.77168	0.77168	0.77168	0.77167	0.77167	0.77167	0.77167	0.77166	0.77166	0.77166	174.90
175.00	0.77165	0.77165	0.77165	0.77164	0.77164	0.77164	0.77164	0.77163	0.77163	0.77163	175.00
175.10	0.77162	0.77162	0.77162	0.77162	0.77161	0.77161	0.77161	0.77160	0.77160	0.77160	175.10
175.20	0.77160	0.77159	0.77159	0.77159	0.77158	0.77158	0.77158	0.77158	0.77157	0.77157	175.20
175.30	0.77157	0.77157	0.77156	0.77156	0.77156	0.77155	0.77155	0.77155	0.77155	0.77154	175.30
175.40	0.77154	0.77154	0.77154	0.77153	0.77153	0.77153	0.77152	0.77152	0.77152	0.77152	175.40
175.50	0.77151	0.77151	0.77151	0.77151	0.77150	0.77150	0.77150	0.77150	0.77149	0.77149	175.50
175.60	0.77149	0.77149	0.77148	0.77148	0.77148	0.77147	0.77147	0.77147	0.77147	0.77146	175.60
175.70	0.77146	0.77146	0.77146	0.77145	0.77145	0.77145	0.77145	0.77144	0.77144	0.77144	175.70
175.80	0.77144	0.77143	0.77143	0.77143	0.77143	0.77142	0.77142	0.77142	0.77142	0.77142	175.80
175.90	0.77141	0.77141	0.77141	0.77141	0.77140	0.77140	0.77140	0.77140	0.77139	0.77139	175.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha Weighted Mean Radiation (1.541838 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
176.00	0.77139	0.77139	0.77138	0.77138	0.77138	0.77138	0.77137	0.77137	0.77137	0.77137	176.00
176.10	0.77137	0.77136	0.77136	0.77136	0.77136	0.77135	0.77135	0.77135	0.77135	0.77135	176.10
176.20	0.77134	0.77134	0.77134	0.77134	0.77133	0.77133	0.77133	0.77133	0.77133	0.77132	176.20
176.30	0.77132	0.77132	0.77132	0.77131	0.77131	0.77131	0.77131	0.77131	0.77130	0.77130	176.30
176.40	0.77130	0.77130	0.77130	0.77129	0.77129	0.77129	0.77129	0.77128	0.77128	0.77128	176.40
176.50	0.77128	0.77128	0.77127	0.77127	0.77127	0.77127	0.77127	0.77126	0.77126	0.77126	176.50
176.60	0.77126	0.77126	0.77125	0.77125	0.77125	0.77125	0.77125	0.77124	0.77124	0.77124	176.60
176.70	0.77124	0.77124	0.77123	0.77123	0.77123	0.77123	0.77123	0.77123	0.77122	0.77122	176.70
176.80	0.77122	0.77122	0.77122	0.77121	0.77121	0.77121	0.77121	0.77121	0.77120	0.77120	176.80
176.90	0.77120	0.77120	0.77120	0.77120	0.77119	0.77119	0.77119	0.77119	0.77119	0.77119	176.90
177.00	0.77118	0.77118	0.77118	0.77118	0.77118	0.77117	0.77117	0.77117	0.77117	0.77117	177.00
177.10	0.77117	0.77116	0.77116	0.77116	0.77116	0.77116	0.77116	0.77115	0.77115	0.77115	177.10
177.20	0.77115	0.77115	0.77115	0.77114	0.77114	0.77114	0.77114	0.77114	0.77114	0.77113	177.20
177.30	0.77113	0.77113	0.77113	0.77113	0.77113	0.77113	0.77112	0.77112	0.77112	0.77112	177.30
177.40	0.77112	0.77112	0.77111	0.77111	0.77111	0.77111	0.77111	0.77111	0.77111	0.77110	177.40
177.50	0.77110	0.77110	0.77110	0.77110	0.77110	0.77110	0.77109	0.77109	0.77109	0.77109	177.50
177.60	0.77109	0.77109	0.77109	0.77108	0.77108	0.77108	0.77108	0.77108	0.77108	0.77108	177.60
177.70	0.77107	0.77107	0.77107	0.77107	0.77107	0.77107	0.77107	0.77106	0.77106	0.77106	177.70
177.80	0.77106	0.77106	0.77106	0.77106	0.77106	0.77105	0.77105	0.77105	0.77105	0.77105	177.80
177.90	0.77105	0.77105	0.77105	0.77104	0.77104	0.77104	0.77104	0.77104	0.77104	0.77104	177.90
178.00	0.77104	0.77104	0.77103	0.77103	0.77103	0.77103	0.77103	0.77103	0.77103	0.77103	178.00
178.10	0.77102	0.77102	0.77102	0.77102	0.77102	0.77102	0.77102	0.77102	0.77102	0.77102	178.10
178.20	0.77101	0.77101	0.77101	0.77101	0.77101	0.77101	0.77101	0.77101	0.77101	0.77100	178.20
178.30	0.77100	0.77100	0.77100	0.77100	0.77100	0.77100	0.77100	0.77100	0.77100	0.77100	178.30
178.40	0.77099	0.77099	0.77099	0.77099	0.77099	0.77099	0.77099	0.77099	0.77099	0.77099	178.40
178.50	0.77099	0.77098	0.77098	0.77098	0.77098	0.77098	0.77098	0.77098	0.77098	0.77098	178.50
178.60	0.77098	0.77098	0.77097	0.77097	0.77097	0.77097	0.77097	0.77097	0.77097	0.77097	178.60
178.70	0.77097	0.77097	0.77097	0.77097	0.77097	0.77096	0.77096	0.77096	0.77096	0.77096	178.70
178.80	0.77096	0.77096	0.77096	0.77096	0.77096	0.77096	0.77096	0.77096	0.77096	0.77096	178.80
178.90	0.77095	0.77095	0.77095	0.77095	0.77095	0.77095	0.77095	0.77095	0.77095	0.77095	178.90
179.00	0.77095	0.77095	0.77095	0.77095	0.77095	0.77095	0.77094	0.77094	0.77094	0.77094	179.00
179.10	0.77094	0.77094	0.77094	0.77094	0.77094	0.77094	0.77094	0.77094	0.77094	0.77094	179.10
179.20	0.77094	0.77094	0.77094	0.77094	0.77094	0.77094	0.77094	0.77093	0.77093	0.77093	179.20
179.30	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	179.30
179.40	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	0.77093	179.40
179.50	0.77093	0.77093	0.77093	0.77093	0.77093	0.77092	0.77092	0.77092	0.77092	0.77092	179.50
179.60	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	179.60
179.70	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	179.70
179.80	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	179.80
179.90	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	0.77092	179.90

Conversion Table - Degrees Two Theta to Interplaner Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
0.00	0.00000	8826.77008	4413.38506	2942.25672	2206.69256	1765.35407	1471.12841	1260.96723	1103.34635	980.75233	0.00
0.10	882.67712	802.43377	735.56431	678.98246	630.48373	588.45151	551.67331	519.22196	490.37632	464.56706	0.10
0.20	441.33873	420.32262	401.21707	383.77287	367.78236	353.07108	339.49145	326.91771	315.24210	304.37171	0.20
0.30	294.22601	284.73487	275.83692	267.47825	259.61127	252.19382	245.18846	238.56177	232.28385	226.32787	0.30
0.40	220.66970	215.28753	210.16166	205.27420	200.60890	196.15095	191.88682	187.80415	183.89158	180.13871	0.40
0.50	176.53596	173.07449	169.74616	166.54343	163.45931	160.48734	157.62152	154.85625	152.18634	149.60693	0.50
0.60	147.11351	144.70183	142.36795	140.10817	137.91900	135.79719	133.73968	131.74359	129.80620	127.92498	0.60
0.70	126.09750	124.32150	122.59484	120.91548	119.28151	117.69111	116.14256	114.63424	113.16459	111.73215	0.70
0.80	110.33552	108.97338	107.64446	106.34756	105.08154	103.84531	102.63782	101.45810	100.30519	99.17819	0.80
0.90	98.07623	96.99849	95.94418	94.91255	93.90286	92.91443	91.94660	90.99872	90.07018	89.16040	0.90
1.00	88.26882	87.39489	86.53810	85.69795	84.87395	84.06565	83.27260	82.49438	81.73056	80.98076	1.00
1.10	80.24460	79.52169	78.81170	78.11428	77.42908	76.75581	76.09415	75.44379	74.80446	74.17587	1.10
1.20	73.55776	72.94987	72.35194	71.76374	71.18502	70.61556	70.05514	69.50355	68.96058	68.42602	1.20
1.30	67.89969	67.38139	66.87095	66.36818	65.87292	65.38499	64.90424	64.43051	63.96365	63.50350	1.30
1.40	63.04993	62.60279	62.16194	61.72727	61.29863	60.87590	60.45896	60.04770	59.64200	59.24174	1.40
1.50	58.84681	58.45712	58.07256	57.69302	57.31841	56.94864	56.58361	56.22322	55.86740	55.51606	1.50
1.60	55.16911	54.82646	54.48805	54.15379	53.82361	53.49742	53.17517	52.85678	52.54218	52.23130	1.60
1.70	51.92408	51.62045	51.32036	51.02373	50.73051	50.44065	50.15407	49.87074	49.59059	49.31357	1.70
1.80	49.03963	48.76871	48.50078	48.23577	47.97364	47.71434	47.45784	47.20407	46.95301	46.70460	1.80
1.90	46.45881	46.21560	45.97491	45.73672	45.50099	45.26767	45.03674	44.80815	44.58187	44.35786	1.90
2.00	44.13609	43.91653	43.69914	43.48390	43.27077	43.05971	42.85071	42.64372	42.43872	42.23569	2.00
2.10	42.03459	41.83540	41.63808	41.44262	41.24899	41.05715	40.86710	40.67879	40.49221	40.30734	2.10
2.20	40.12415	39.94261	39.76271	39.58443	39.40773	39.23261	39.05904	38.88699	38.71646	38.54741	2.20
2.30	38.37984	38.21371	38.04902	37.88574	37.72386	37.56336	37.40421	37.24641	37.08994	36.93477	2.30
2.40	36.78090	36.62830	36.47697	36.32688	36.17802	36.03038	35.88394	35.73868	35.59459	35.45167	2.40
2.50	35.30988	35.16923	35.02969	34.89125	34.75391	34.61764	34.48244	34.34829	34.21518	34.08310	2.50
2.60	33.95203	33.82197	33.69290	33.56481	33.43769	33.31154	33.18633	33.06206	32.93871	32.81629	2.60
2.70	32.69477	32.57414	32.45441	32.33555	32.21756	32.10043	31.98414	31.86870	31.75409	31.64029	2.70
2.80	31.52732	31.41514	31.30376	31.19317	31.08336	30.97432	30.86604	30.75851	30.65173	30.54569	2.80
2.90	30.44039	30.33580	30.23194	30.12878	30.02632	29.92456	29.82349	29.72309	29.62337	29.52432	2.90
3.00	29.42593	29.32819	29.23110	29.13465	29.03883	28.94365	28.84908	28.75513	28.66180	28.56906	3.00
3.10	28.47693	28.38538	28.29443	28.20405	28.11425	28.02502	27.93636	27.84825	27.76070	27.67370	3.10
3.20	27.58724	27.50132	27.41594	27.33108	27.24675	27.16293	27.07963	26.99684	26.91456	26.83277	3.20
3.30	26.75149	26.67069	26.59038	26.51055	26.43120	26.35232	26.27391	26.19597	26.11849	26.04147	3.30
3.40	25.96490	25.88878	25.81310	25.73787	25.66307	25.58871	25.51477	25.44127	25.36818	25.29552	3.40
3.50	25.22326	25.15143	25.08000	25.00897	24.93835	24.86812	24.79829	24.72885	24.65979	24.59113	3.50
3.60	24.52284	24.45493	24.38740	24.32024	24.25345	24.18702	24.12096	24.05526	23.98991	23.92492	3.60
3.70	23.86028	23.79599	23.73204	23.66844	23.60518	23.54226	23.47967	23.41741	23.35548	23.29388	3.70
3.80	23.23260	23.17164	23.11101	23.05069	22.99068	22.93099	22.87161	22.81253	22.75375	22.69528	3.80
3.90	22.63711	22.57924	22.52166	22.46438	22.40738	22.35068	22.29426	22.23813	22.18227	22.12670	3.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
4.00	22.07141	22.01639	21.96164	21.90717	21.85297	21.79903	21.74536	21.69196	21.63881	21.58593	4.00
4.10	21.53330	21.48093	21.42882	21.37695	21.32534	21.27398	21.22286	21.17199	21.12136	21.07097	4.10
4.20	21.02083	20.97092	20.92125	20.87181	20.82260	20.77363	20.72489	20.67638	20.62809	20.58003	4.20
4.30	20.53219	20.48457	20.43718	20.39000	20.34304	20.29630	20.24977	20.20346	20.15735	20.11146	4.30
4.40	20.06577	20.02029	19.97502	19.92995	19.88509	19.84042	19.79596	19.75170	19.70763	19.66376	4.40
4.50	19.62009	19.57661	19.53332	19.49022	19.44731	19.40459	19.36206	19.31972	19.27756	19.23558	4.50
4.60	19.19379	19.15217	19.11074	19.06949	19.02841	18.98751	18.94679	18.90624	18.86586	18.82566	4.60
4.70	18.78563	18.74577	18.70607	18.66655	18.62719	18.58800	18.54897	18.51010	18.47140	18.43286	4.70
4.80	18.39448	18.35626	18.31820	18.28030	18.24255	18.20496	18.16752	18.13024	18.09311	18.05613	4.80
4.90	18.01931	17.98263	17.94610	17.90972	17.87349	17.83741	17.80147	17.76567	17.73002	17.69451	4.90
5.00	17.65914	17.62392	17.58883	17.55389	17.51908	17.48441	17.44988	17.41548	17.38122	17.34710	5.00
5.10	17.31311	17.27925	17.24552	17.21193	17.17846	17.14513	17.11193	17.07885	17.04590	17.01308	5.10
5.20	16.98038	16.94782	16.91537	16.88305	16.85085	16.81878	16.78683	16.75499	16.72328	16.69169	5.20
5.30	16.66022	16.62887	16.59763	16.56652	16.53552	16.50463	16.47386	16.44321	16.41266	16.38224	5.30
5.40	16.35192	16.32172	16.29163	16.26165	16.23178	16.20202	16.17236	16.14282	16.11339	16.08406	5.40
5.50	16.05484	16.02572	15.99671	15.96781	15.93901	15.91031	15.88172	15.85323	15.82484	15.79655	5.50
5.60	15.76836	15.74028	15.71229	15.68441	15.65662	15.62893	15.60134	15.57385	15.54645	15.51915	5.60
5.70	15.49195	15.46484	15.43783	15.41091	15.38408	15.35735	15.33071	15.30416	15.27771	15.25134	5.70
5.80	15.22507	15.19889	15.17279	15.14679	15.12088	15.09505	15.06931	15.04367	15.01810	14.99263	5.80
5.90	14.96724	14.94194	14.91672	14.89159	14.86654	14.84158	14.81670	14.79190	14.76719	14.74256	5.90
6.00	14.71801	14.69354	14.66916	14.64485	14.62063	14.59648	14.57242	14.54843	14.52453	14.50070	6.00
6.10	14.47695	14.45328	14.42969	14.40617	14.38273	14.35936	14.33608	14.31286	14.28973	14.26666	6.10
6.20	14.24367	14.22076	14.19792	14.17515	14.15246	14.12984	14.10729	14.08481	14.06240	14.04007	6.20
6.30	14.01781	13.99561	13.97349	13.95144	13.92946	13.90754	13.88570	13.86392	13.84221	13.82057	6.30
6.40	13.79900	13.77750	13.75606	13.73469	13.71338	13.69214	13.67097	13.64986	13.62882	13.60784	6.40
6.50	13.58693	13.56608	13.54530	13.52458	13.50392	13.48333	13.46279	13.44233	13.42192	13.40157	6.50
6.60	13.38129	13.36107	13.34091	13.32081	13.30077	13.28079	13.26087	13.24101	13.22121	13.20147	6.60
6.70	13.18179	13.16217	13.14261	13.12310	13.10365	13.08426	13.06493	13.04565	13.02643	13.00727	6.70
6.80	12.98817	12.96912	12.95012	12.93118	12.91230	12.89347	12.87470	12.85598	12.83732	12.81871	6.80
6.90	12.80015	12.78165	12.76320	12.74481	12.72647	12.70818	12.68994	12.67176	12.65363	12.63555	6.90
7.00	12.61752	12.59954	12.58161	12.56374	12.54592	12.52814	12.51042	12.49275	12.47512	12.45755	7.00
7.10	12.44003	12.42255	12.40513	12.38775	12.37043	12.35315	12.33592	12.31873	12.30160	12.28451	7.10
7.20	12.26747	12.25048	12.23354	12.21664	12.19979	12.18298	12.16622	12.14951	12.13284	12.11622	7.20
7.30	12.09965	12.08312	12.06663	12.05019	12.03380	12.01745	12.00114	11.98488	11.96867	11.95249	7.30
7.40	11.93636	11.92028	11.90423	11.88823	11.87228	11.85636	11.84049	11.82466	11.80888	11.79314	7.40
7.50	11.77743	11.76177	11.74616	11.73058	11.71504	11.69955	11.68410	11.66868	11.65331	11.63798	7.50
7.60	11.62269	11.60744	11.59223	11.57706	11.56193	11.54684	11.53178	11.51677	11.50180	11.48686	7.60
7.70	11.47197	11.45711	11.44229	11.42751	11.41277	11.39807	11.38340	11.36877	11.35418	11.33963	7.70
7.80	11.32512	11.31064	11.29620	11.28179	11.26742	11.25309	11.23880	11.22454	11.21032	11.19613	7.80
7.90	11.18198	11.16787	11.15379	11.13975	11.12574	11.11177	11.09783	11.08393	11.07006	11.05623	7.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
8.00	11.04243	11.02867	11.01494	11.00124	10.98758	10.97396	10.96036	10.94680	10.93328	10.91979	8.00
8.10	10.90633	10.89290	10.87951	10.86615	10.85282	10.83953	10.82627	10.81304	10.79984	10.78668	8.10
8.20	10.77355	10.76045	10.74738	10.73434	10.72134	10.70836	10.69542	10.68251	10.66963	10.65678	8.20
8.30	10.64397	10.63118	10.61843	10.60570	10.59301	10.58034	10.56771	10.55511	10.54253	10.52999	8.30
8.40	10.51748	10.50499	10.49254	10.48011	10.46772	10.45535	10.44302	10.43071	10.41843	10.40618	8.40
8.50	10.39396	10.38177	10.36961	10.35748	10.34537	10.33329	10.32124	10.30922	10.29723	10.28526	8.50
8.60	10.27333	10.26142	10.24954	10.23768	10.22586	10.21406	10.20228	10.19054	10.17882	10.16713	8.60
8.70	10.15547	10.14383	10.13222	10.12063	10.10908	10.09755	10.08604	10.07456	10.06311	10.05169	8.70
8.80	10.04029	10.02891	10.01756	10.00624	9.99494	9.98367	9.97243	9.96121	9.95001	9.93884	8.80
8.90	9.92770	9.91658	9.90548	9.89441	9.88337	9.87235	9.86135	9.85038	9.83943	9.82851	8.90
9.00	9.81761	9.80674	9.79589	9.78506	9.77426	9.76348	9.75273	9.74200	9.73129	9.72061	9.00
9.10	9.70995	9.69931	9.68870	9.67811	9.66755	9.65700	9.64648	9.63598	9.62551	9.61506	9.10
9.20	9.60463	9.59422	9.58384	9.57348	9.56314	9.55283	9.54253	9.53226	9.52201	9.51178	9.20
9.30	9.50158	9.49139	9.48123	9.47109	9.46098	9.45088	9.44080	9.43075	9.42072	9.41071	9.30
9.40	9.40072	9.39075	9.38081	9.37088	9.36098	9.35109	9.34123	9.33139	9.32157	9.31177	9.40
9.50	9.30199	9.29223	9.28249	9.27277	9.26308	9.25340	9.24374	9.23411	9.22449	9.21489	9.50
9.60	9.20532	9.19576	9.18622	9.17671	9.16721	9.15773	9.14827	9.13884	9.12942	9.12002	9.60
9.70	9.11064	9.10128	9.09194	9.08262	9.07331	9.06403	9.05477	9.04552	9.03629	9.02709	9.70
9.80	9.01790	9.00873	8.99958	8.99044	8.98133	8.97223	8.96316	8.95410	8.94506	8.93603	9.80
9.90	8.92703	8.91804	8.90908	8.90013	8.89120	8.88228	8.87339	8.86451	8.85565	8.84681	9.90
10.00	8.83798	8.82918	8.82039	8.81162	8.80286	8.79413	8.78541	8.77670	8.76802	8.75935	10.00
10.10	8.75070	8.74207	8.73345	8.72485	8.71627	8.70771	8.69916	8.69063	8.68211	8.67362	10.10
10.20	8.66513	8.65667	8.64822	8.63979	8.63138	8.62298	8.61460	8.60623	8.59788	8.58955	10.20
10.30	8.58123	8.57293	8.56464	8.55638	8.54812	8.53989	8.53167	8.52346	8.51527	8.50710	10.30
10.40	8.49894	8.49080	8.48267	8.47456	8.46647	8.45839	8.45032	8.44228	8.43424	8.42623	10.40
10.50	8.41822	8.41024	8.40226	8.39431	8.38636	8.37844	8.37053	8.36263	8.35475	8.34688	10.50
10.60	8.33903	8.33119	8.32337	8.31556	8.30777	8.29999	8.29223	8.28448	8.27674	8.26902	10.60
10.70	8.26132	8.25363	8.24595	8.23829	8.23064	8.22300	8.21539	8.20778	8.20019	8.19261	10.70
10.80	8.18505	8.17750	8.16996	8.16244	8.15493	8.14744	8.13996	8.13249	8.12504	8.11760	10.80
10.90	8.11018	8.10277	8.09537	8.08799	8.08062	8.07326	8.06591	8.05858	8.05127	8.04396	10.90
11.00	8.03667	8.02940	8.02213	8.01488	8.00764	8.00042	7.99321	7.98601	7.97883	7.97165	11.00
11.10	7.96449	7.95735	7.95021	7.94309	7.93599	7.92889	7.92181	7.91474	7.90768	7.90064	11.10
11.20	7.89361	7.88659	7.87958	7.87259	7.86560	7.85864	7.85168	7.84473	7.83780	7.83088	11.20
11.30	7.82398	7.81708	7.81020	7.80333	7.79647	7.78962	7.78279	7.77596	7.76915	7.76235	11.30
11.40	7.75557	7.74879	7.74203	7.73528	7.72854	7.72181	7.71510	7.70839	7.70170	7.69502	11.40
11.50	7.68835	7.68169	7.67505	7.66841	7.66179	7.65518	7.64858	7.64199	7.63542	7.62885	11.50
11.60	7.62230	7.61575	7.60922	7.60270	7.59619	7.58969	7.58321	7.57673	7.57027	7.56381	11.60
11.70	7.55737	7.55094	7.54452	7.53811	7.53171	7.52532	7.51895	7.51258	7.50623	7.49988	11.70
11.80	7.49355	7.48723	7.48092	7.47461	7.46832	7.46204	7.45577	7.44952	7.44327	7.43703	11.80
11.90	7.43080	7.42459	7.41838	7.41218	7.40600	7.39982	7.39366	7.38750	7.38136	7.37523	11.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
12.00	7.36910	7.36299	7.35689	7.35079	7.34471	7.33864	7.33258	7.32652	7.32048	7.31445	12.00
12.10	7.30842	7.30241	7.29641	7.29042	7.28443	7.27846	7.27250	7.26654	7.26060	7.25467	12.10
12.20	7.24874	7.24283	7.23692	7.23103	7.22514	7.21927	7.21340	7.20755	7.20170	7.19586	12.20
12.30	7.19003	7.18422	7.17841	7.17261	7.16682	7.16104	7.15527	7.14950	7.14375	7.13801	12.30
12.40	7.13227	7.12655	7.12083	7.11513	7.10943	7.10374	7.09806	7.09239	7.08673	7.08108	12.40
12.50	7.07544	7.06981	7.06418	7.05857	7.05296	7.04736	7.04177	7.03619	7.03062	7.02506	12.50
12.60	7.01951	7.01396	7.00843	7.00290	6.99739	6.99188	6.98638	6.98088	6.97540	6.96993	12.60
12.70	6.96446	6.95900	6.95356	6.94812	6.94268	6.93726	6.93185	6.92644	6.92104	6.91566	12.70
12.80	6.91028	6.90490	6.89954	6.89418	6.88884	6.88350	6.87817	6.87285	6.86753	6.86223	12.80
12.90	6.85693	6.85164	6.84636	6.84109	6.83582	6.83057	6.82532	6.82008	6.81485	6.80963	12.90
13.00	6.80441	6.79920	6.79400	6.78881	6.78363	6.77845	6.77328	6.76812	6.76297	6.75783	13.00
13.10	6.75269	6.74756	6.74244	6.73733	6.73222	6.72713	6.72204	6.71696	6.71188	6.70682	13.10
13.20	6.70176	6.69671	6.69166	6.68663	6.68160	6.67658	6.67157	6.66656	6.66157	6.65658	13.20
13.30	6.65159	6.64662	6.64165	6.63669	6.63174	6.62679	6.62186	6.61692	6.61200	6.60709	13.30
13.40	6.60218	6.59728	6.59238	6.58750	6.58262	6.57775	6.57288	6.56803	6.56318	6.55833	13.40
13.50	6.55350	6.54867	6.54385	6.53903	6.53423	6.52943	6.52463	6.51985	6.51507	6.51030	13.50
13.60	6.50553	6.50078	6.49603	6.49128	6.48655	6.48182	6.47709	6.47238	6.46767	6.46297	13.60
13.70	6.45827	6.45358	6.44890	6.44423	6.43956	6.43490	6.43025	6.42560	6.42096	6.41632	13.70
13.80	6.41170	6.40708	6.40246	6.39786	6.39326	6.38866	6.38408	6.37949	6.37492	6.37035	13.80
13.90	6.36579	6.36124	6.35669	6.35215	6.34762	6.34309	6.33857	6.33405	6.32954	6.32504	13.90
14.00	6.32055	6.31606	6.31158	6.30710	6.30263	6.29817	6.29371	6.28926	6.28481	6.28038	14.00
14.10	6.27595	6.27152	6.26710	6.26269	6.25828	6.25388	6.24949	6.24510	6.24072	6.23634	14.10
14.20	6.23197	6.22761	6.22325	6.21890	6.21456	6.21022	6.20589	6.20156	6.19724	6.19292	14.20
14.30	6.18862	6.18431	6.18002	6.17573	6.17144	6.16717	6.16289	6.15863	6.15437	6.15011	14.30
14.40	6.14586	6.14162	6.13738	6.13315	6.12893	6.12471	6.12050	6.11629	6.11209	6.10789	14.40
14.50	6.10370	6.09952	6.09534	6.09117	6.08700	6.08284	6.07868	6.07454	6.07039	6.06625	14.50
14.60	6.06212	6.05799	6.05387	6.04976	6.04565	6.04154	6.03744	6.03335	6.02926	6.02518	14.60
14.70	6.02111	6.01704	6.01297	6.00891	6.00486	6.00081	5.99676	5.99273	5.98869	5.98467	14.70
14.80	5.98065	5.97663	5.97262	5.96862	5.96462	5.96062	5.95663	5.95265	5.94867	5.94470	14.80
14.90	5.94073	5.93677	5.93281	5.92886	5.92492	5.92098	5.91704	5.91311	5.90919	5.90527	14.90
15.00	5.90135	5.89744	5.89354	5.88964	5.88575	5.88186	5.87798	5.87410	5.87022	5.86636	15.00
15.10	5.86249	5.85864	5.85478	5.85094	5.84710	5.84326	5.83943	5.83560	5.83178	5.82796	15.10
15.20	5.82415	5.82034	5.81654	5.81274	5.80895	5.80517	5.80138	5.79761	5.79384	5.79007	15.20
15.30	5.78631	5.78255	5.77880	5.77505	5.77131	5.76757	5.76384	5.76011	5.75639	5.75267	15.30
15.40	5.74896	5.74525	5.74155	5.73785	5.73415	5.73047	5.72678	5.72310	5.71943	5.71576	15.40
15.50	5.71209	5.70843	5.70478	5.70113	5.69748	5.69384	5.69020	5.68657	5.68294	5.67932	15.50
15.60	5.67570	5.67209	5.66848	5.66487	5.66127	5.65768	5.65409	5.65050	5.64692	5.64335	15.60
15.70	5.63977	5.63621	5.63264	5.62909	5.62553	5.62198	5.61844	5.61490	5.61136	5.60783	15.70
15.80	5.60430	5.60078	5.59726	5.59375	5.59024	5.58674	5.58324	5.57974	5.57625	5.57276	15.80
15.90	5.56928	5.56580	5.56233	5.55886	5.55540	5.55193	5.54848	5.54503	5.54158	5.53814	15.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
16.00	5.53470	5.53126	5.52783	5.52441	5.52099	5.51757	5.51415	5.51075	5.50734	5.50394	16.00
16.10	5.50054	5.49715	5.49377	5.49038	5.48700	5.48363	5.48026	5.47689	5.47353	5.47017	16.10
16.20	5.46682	5.46347	5.46012	5.45678	5.45344	5.45011	5.44678	5.44345	5.44013	5.43681	16.20
16.30	5.43350	5.43019	5.42689	5.42359	5.42029	5.41700	5.41371	5.41042	5.40714	5.40387	16.30
16.40	5.40059	5.39733	5.39406	5.39080	5.38754	5.38429	5.38104	5.37780	5.37456	5.37132	16.40
16.50	5.36809	5.36486	5.36163	5.35841	5.35520	5.35198	5.34877	5.34557	5.34237	5.33917	16.50
16.60	5.33597	5.33278	5.32960	5.32642	5.32324	5.32006	5.31689	5.31373	5.31056	5.30740	16.60
16.70	5.30425	5.30110	5.29795	5.29480	5.29166	5.28853	5.28539	5.28226	5.27914	5.27602	16.70
16.80	5.27290	5.26978	5.26667	5.26357	5.26046	5.25736	5.25427	5.25118	5.24809	5.24500	16.80
16.90	5.24192	5.23885	5.23577	5.23270	5.22963	5.22657	5.22351	5.22046	5.21741	5.21436	16.90
17.00	5.21131	5.20827	5.20523	5.20220	5.19917	5.19614	5.19312	5.19010	5.18708	5.18407	17.00
17.10	5.18106	5.17806	5.17505	5.17206	5.16906	5.16607	5.16308	5.16010	5.15712	5.15414	17.10
17.20	5.15116	5.14819	5.14523	5.14226	5.13930	5.13635	5.13339	5.13044	5.12750	5.12455	17.20
17.30	5.12161	5.11868	5.11574	5.11281	5.10989	5.10697	5.10405	5.10113	5.09822	5.09531	17.30
17.40	5.09240	5.08950	5.08660	5.08371	5.08081	5.07792	5.07504	5.07216	5.06928	5.06640	17.40
17.50	5.06353	5.06066	5.05779	5.05493	5.05207	5.04921	5.04636	5.04351	5.04067	5.03782	17.50
17.60	5.03498	5.03215	5.02931	5.02648	5.02366	5.02083	5.01801	5.01519	5.01238	5.00957	17.60
17.70	5.00676	5.00396	5.00115	4.99836	4.99556	4.99277	4.98998	4.98720	4.98441	4.98163	17.70
17.80	4.97886	4.97608	4.97331	4.97055	4.96778	4.96502	4.96227	4.95951	4.95676	4.95401	17.80
17.90	4.95127	4.94853	4.94579	4.94305	4.94032	4.93759	4.93486	4.93214	4.92942	4.92670	17.90
18.00	4.92399	4.92127	4.91857	4.91586	4.91316	4.91046	4.90776	4.90507	4.90238	4.89969	18.00
18.10	4.89701	4.89432	4.89165	4.88897	4.88630	4.88363	4.88096	4.87830	4.87564	4.87298	18.10
18.20	4.87032	4.86767	4.86502	4.86238	4.85973	4.85709	4.85446	4.85182	4.84919	4.84656	18.20
18.30	4.84393	4.84131	4.83869	4.83607	4.83346	4.83085	4.82824	4.82563	4.82303	4.82043	18.30
18.40	4.81783	4.81524	4.81265	4.81006	4.80747	4.80489	4.80231	4.79973	4.79716	4.79459	18.40
18.50	4.79202	4.78945	4.78689	4.78433	4.78177	4.77921	4.77666	4.77411	4.77156	4.76902	18.50
18.60	4.76648	4.76394	4.76140	4.75887	4.75634	4.75381	4.75129	4.74876	4.74624	4.74373	18.60
18.70	4.74121	4.73870	4.73619	4.73369	4.73118	4.72868	4.72618	4.72369	4.72120	4.71871	18.70
18.80	4.71622	4.71373	4.71125	4.70877	4.70630	4.70382	4.70135	4.69888	4.69641	4.69395	18.80
18.90	4.69149	4.68903	4.68658	4.68412	4.68167	4.67922	4.67678	4.67434	4.67190	4.66946	18.90
19.00	4.66702	4.66459	4.66216	4.65973	4.65731	4.65489	4.65247	4.65005	4.64763	4.64522	19.00
19.10	4.64281	4.64041	4.63800	4.63560	4.63320	4.63080	4.62841	4.62602	4.62363	4.62124	19.10
19.20	4.61886	4.61648	4.61410	4.61172	4.60934	4.60697	4.60460	4.60224	4.59987	4.59751	19.20
19.30	4.59515	4.59279	4.59044	4.58809	4.58574	4.58339	4.58104	4.57870	4.57636	4.57402	19.30
19.40	4.57169	4.56936	4.56703	4.56470	4.56237	4.56005	4.55773	4.55541	4.55309	4.55078	19.40
19.50	4.54847	4.54616	4.54385	4.54155	4.53925	4.53695	4.53465	4.53236	4.53007	4.52778	19.50
19.60	4.52549	4.52320	4.52092	4.51864	4.51636	4.51409	4.51181	4.50954	4.50727	4.50500	19.60
19.70	4.50274	4.50048	4.49822	4.49596	4.49371	4.49145	4.48920	4.48696	4.48471	4.48247	19.70
19.80	4.48022	4.47799	4.47575	4.47351	4.47128	4.46905	4.46682	4.46460	4.46238	4.46015	19.80
19.90	4.45794	4.45572	4.45351	4.45129	4.44908	4.44688	4.44467	4.44247	4.44027	4.43807	19.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
20.00	4.43587	4.43368	4.43149	4.42930	4.42711	4.42492	4.42274	4.42056	4.41838	4.41620	20.00
20.10	4.41403	4.41186	4.40968	4.40752	4.40535	4.40319	4.40103	4.39887	4.39671	4.39455	20.10
20.20	4.39240	4.39025	4.38810	4.38596	4.38381	4.38167	4.37953	4.37739	4.37525	4.37312	20.20
20.30	4.37099	4.36886	4.36673	4.36461	4.36248	4.36036	4.35824	4.35613	4.35401	4.35190	20.30
20.40	4.34979	4.34768	4.34557	4.34347	4.34137	4.33927	4.33717	4.33507	4.33298	4.33088	20.40
20.50	4.32879	4.32671	4.32462	4.32254	4.32045	4.31837	4.31630	4.31422	4.31215	4.31008	20.50
20.60	4.30801	4.30594	4.30387	4.30181	4.29975	4.29769	4.29563	4.29357	4.29152	4.28947	20.60
20.70	4.28742	4.28537	4.28333	4.28128	4.27924	4.27720	4.27516	4.27313	4.27109	4.26906	20.70
20.80	4.26703	4.26500	4.26298	4.26095	4.25893	4.25691	4.25489	4.25288	4.25086	4.24885	20.80
20.90	4.24684	4.24483	4.24283	4.24082	4.23882	4.23682	4.23482	4.23282	4.23083	4.22883	20.90
21.00	4.22684	4.22485	4.22287	4.22088	4.21890	4.21692	4.21494	4.21296	4.21098	4.20901	21.00
21.10	4.20704	4.20507	4.20310	4.20113	4.19917	4.19720	4.19524	4.19328	4.19133	4.18937	21.10
21.20	4.18742	4.18547	4.18352	4.18157	4.17962	4.17768	4.17573	4.17379	4.17186	4.16992	21.20
21.30	4.16798	4.16605	4.16412	4.16219	4.16026	4.15833	4.15641	4.15449	4.15257	4.15065	21.30
21.40	4.14873	4.14682	4.14490	4.14299	4.14108	4.13917	4.13727	4.13536	4.13346	4.13156	21.40
21.50	4.12966	4.12776	4.12587	4.12397	4.12208	4.12019	4.11830	4.11642	4.11453	4.11265	21.50
21.60	4.11077	4.10889	4.10701	4.10513	4.10326	4.10139	4.09952	4.09765	4.09578	4.09391	21.60
21.70	4.09205	4.09019	4.08833	4.08647	4.08461	4.08276	4.08090	4.07905	4.07720	4.07535	21.70
21.80	4.07350	4.07166	4.06982	4.06797	4.06613	4.06430	4.06246	4.06062	4.05879	4.05696	21.80
21.90	4.05513	4.05330	4.05147	4.04965	4.04783	4.04600	4.04418	4.04237	4.04055	4.03874	21.90
22.00	4.03692	4.03511	4.03330	4.03149	4.02969	4.02788	4.02608	4.02428	4.02248	4.02068	22.00
22.10	4.01888	4.01709	4.01529	4.01350	4.01171	4.00992	4.00813	4.00635	4.00457	4.00278	22.10
22.20	4.00100	3.99922	3.99745	3.99567	3.99390	3.99213	3.99035	3.98859	3.98682	3.98505	22.20
22.30	3.98329	3.98152	3.97976	3.97800	3.97625	3.97449	3.97273	3.97098	3.96923	3.96748	22.30
22.40	3.96573	3.96398	3.96224	3.96049	3.95875	3.95701	3.95527	3.95353	3.95180	3.95006	22.40
22.50	3.94833	3.94660	3.94487	3.94314	3.94141	3.93969	3.93796	3.93624	3.93452	3.93280	22.50
22.60	3.93109	3.92937	3.92765	3.92594	3.92423	3.92252	3.92081	3.91910	3.91740	3.91570	22.60
22.70	3.91399	3.91229	3.91059	3.90890	3.90720	3.90550	3.90381	3.90212	3.90043	3.89874	22.70
22.80	3.89705	3.89537	3.89368	3.89200	3.89032	3.88864	3.88696	3.88528	3.88361	3.88193	22.80
22.90	3.88026	3.87859	3.87692	3.87525	3.87358	3.87192	3.87026	3.86859	3.86693	3.86527	22.90
23.00	3.86362	3.86196	3.86030	3.85865	3.85700	3.85535	3.85370	3.85205	3.85040	3.84876	23.00
23.10	3.84712	3.84547	3.84383	3.84219	3.84056	3.83892	3.83728	3.83565	3.83402	3.83239	23.10
23.20	3.83076	3.82913	3.82750	3.82588	3.82426	3.82263	3.82101	3.81939	3.81778	3.81616	23.20
23.30	3.81454	3.81293	3.81132	3.80971	3.80810	3.80649	3.80488	3.80328	3.80167	3.80007	23.30
23.40	3.79847	3.79687	3.79527	3.79367	3.79208	3.79048	3.78889	3.78730	3.78571	3.78412	23.40
23.50	3.78253	3.78094	3.77936	3.77778	3.77619	3.77461	3.77303	3.77145	3.76988	3.76830	23.50
23.60	3.76673	3.76516	3.76358	3.76201	3.76044	3.75888	3.75731	3.75575	3.75418	3.75262	23.60
23.70	3.75106	3.74950	3.74794	3.74639	3.74483	3.74328	3.74172	3.74017	3.73862	3.73707	23.70
23.80	3.73553	3.73398	3.73243	3.73089	3.72935	3.72781	3.72627	3.72473	3.72319	3.72166	23.80
23.90	3.72012	3.71859	3.71706	3.71553	3.71400	3.71247	3.71094	3.70942	3.70789	3.70637	23.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
24.00	3.70485	3.70333	3.70181	3.70029	3.69877	3.69726	3.69574	3.69423	3.69272	3.69121	24.00
24.10	3.68970	3.68819	3.68669	3.68518	3.68368	3.68217	3.68067	3.67917	3.67767	3.67618	24.10
24.20	3.67468	3.67318	3.67169	3.67020	3.66871	3.66722	3.66573	3.66424	3.66275	3.66127	24.20
24.30	3.65978	3.65830	3.65682	3.65534	3.65386	3.65238	3.65090	3.64943	3.64795	3.64648	24.30
24.40	3.64501	3.64354	3.64207	3.64060	3.63913	3.63767	3.63620	3.63474	3.63328	3.63182	24.40
24.50	3.63036	3.62890	3.62744	3.62599	3.62453	3.62308	3.62163	3.62017	3.61872	3.61727	24.50
24.60	3.61583	3.61438	3.61293	3.61149	3.61005	3.60861	3.60716	3.60573	3.60429	3.60285	24.60
24.70	3.60141	3.59998	3.59855	3.59711	3.59568	3.59425	3.59282	3.59139	3.58997	3.58854	24.70
24.80	3.58712	3.58570	3.58427	3.58285	3.58143	3.58001	3.57860	3.57718	3.57576	3.57435	24.80
24.90	3.57294	3.57153	3.57012	3.56871	3.56730	3.56589	3.56449	3.56308	3.56168	3.56027	24.90
25.00	3.55887	3.55747	3.55607	3.55467	3.55328	3.55188	3.55049	3.54909	3.54770	3.54631	25.00
25.10	3.54492	3.54353	3.54214	3.54076	3.53937	3.53799	3.53660	3.53522	3.53384	3.53246	25.10
25.20	3.53108	3.52970	3.52832	3.52695	3.52557	3.52420	3.52283	3.52146	3.52009	3.51872	25.20
25.30	3.51735	3.51598	3.51462	3.51325	3.51189	3.51052	3.50916	3.50780	3.50644	3.50508	25.30
25.40	3.50373	3.50237	3.50102	3.49966	3.49831	3.49696	3.49561	3.49426	3.49291	3.49156	25.40
25.50	3.49021	3.48887	3.48752	3.48618	3.48484	3.48350	3.48216	3.48082	3.47948	3.47814	25.50
25.60	3.47681	3.47547	3.47414	3.47280	3.47147	3.47014	3.46881	3.46748	3.46616	3.46483	25.60
25.70	3.46350	3.46218	3.46086	3.45953	3.45821	3.45689	3.45557	3.45425	3.45294	3.45162	25.70
25.80	3.45031	3.44899	3.44768	3.44637	3.44505	3.44374	3.44244	3.44113	3.43982	3.43851	25.80
25.90	3.43721	3.43591	3.43460	3.43330	3.43200	3.43070	3.42940	3.42810	3.42681	3.42551	25.90
26.00	3.42422	3.42292	3.42163	3.42034	3.41905	3.41776	3.41647	3.41518	3.41389	3.41261	26.00
26.10	3.41132	3.41004	3.40876	3.40747	3.40619	3.40491	3.40363	3.40236	3.40108	3.39980	26.10
26.20	3.39853	3.39725	3.39598	3.39471	3.39344	3.39217	3.39090	3.38963	3.38836	3.38710	26.20
26.30	3.38583	3.38457	3.38331	3.38204	3.38078	3.37952	3.37826	3.37700	3.37575	3.37449	26.30
26.40	3.37323	3.37198	3.37073	3.36947	3.36822	3.36697	3.36572	3.36447	3.36322	3.36198	26.40
26.50	3.36073	3.35949	3.35824	3.35700	3.35576	3.35452	3.35328	3.35204	3.35080	3.34956	26.50
26.60	3.34832	3.34709	3.34585	3.34462	3.34339	3.34216	3.34092	3.33969	3.33847	3.33724	26.60
26.70	3.33601	3.33478	3.33356	3.33233	3.33111	3.32989	3.32867	3.32745	3.32623	3.32501	26.70
26.80	3.32379	3.32257	3.32136	3.32014	3.31893	3.31771	3.31650	3.31529	3.31408	3.31287	26.80
26.90	3.31166	3.31045	3.30924	3.30804	3.30683	3.30563	3.30442	3.30322	3.30202	3.30082	26.90
27.00	3.29962	3.29842	3.29722	3.29603	3.29483	3.29363	3.29244	3.29125	3.29005	3.28886	27.00
27.10	3.28767	3.28648	3.28529	3.28410	3.28292	3.28173	3.28054	3.27936	3.27818	3.27699	27.10
27.20	3.27581	3.27463	3.27345	3.27227	3.27109	3.26991	3.26874	3.26756	3.26639	3.26521	27.20
27.30	3.26404	3.26287	3.26169	3.26052	3.25935	3.25818	3.25702	3.25585	3.25468	3.25352	27.30
27.40	3.25235	3.25119	3.25003	3.24886	3.24770	3.24654	3.24538	3.24422	3.24307	3.24191	27.40
27.50	3.24075	3.23960	3.23844	3.23729	3.23614	3.23498	3.23383	3.23268	3.23153	3.23038	27.50
27.60	3.22924	3.22809	3.22694	3.22580	3.22465	3.22351	3.22237	3.22123	3.22009	3.21894	27.60
27.70	3.21781	3.21667	3.21553	3.21439	3.21326	3.21212	3.21099	3.20985	3.20872	3.20759	27.70
27.80	3.20646	3.20533	3.20420	3.20307	3.20194	3.20081	3.19969	3.19856	3.19744	3.19631	27.80
27.90	3.19519	3.19407	3.19295	3.19183	3.19071	3.18959	3.18847	3.18735	3.18624	3.18512	27.90

Conversion Table - Degrees Two Theta to Interplaner Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
28.00	3.18401	3.18289	3.18178	3.18067	3.17956	3.17844	3.17733	3.17623	3.17512	3.17401	28.00
28.10	3.17290	3.17180	3.17069	3.16959	3.16848	3.16738	3.16628	3.16518	3.16408	3.16298	28.10
28.20	3.16188	3.16078	3.15968	3.15859	3.15749	3.15640	3.15530	3.15421	3.15312	3.15202	28.20
28.30	3.15093	3.14984	3.14875	3.14766	3.14658	3.14549	3.14440	3.14332	3.14223	3.14115	28.30
28.40	3.14006	3.13898	3.13790	3.13682	3.13574	3.13466	3.13358	3.13250	3.13143	3.13035	28.40
28.50	3.12927	3.12820	3.12712	3.12605	3.12498	3.12391	3.12284	3.12177	3.12070	3.11963	28.50
28.60	3.11856	3.11749	3.11643	3.11536	3.11429	3.11323	3.11217	3.11110	3.11004	3.10898	28.60
28.70	3.10792	3.10686	3.10580	3.10474	3.10369	3.10263	3.10157	3.10052	3.09946	3.09841	28.70
28.80	3.09736	3.09630	3.09525	3.09420	3.09315	3.09210	3.09105	3.09000	3.08896	3.08791	28.80
28.90	3.08687	3.08582	3.08478	3.08373	3.08269	3.08165	3.08061	3.07957	3.07853	3.07749	28.90
29.00	3.07645	3.07541	3.07437	3.07334	3.07230	3.07127	3.07023	3.06920	3.06817	3.06713	29.00
29.10	3.06610	3.06507	3.06404	3.06301	3.06198	3.06096	3.05993	3.05890	3.05788	3.05685	29.10
29.20	3.05583	3.05481	3.05378	3.05276	3.05174	3.05072	3.04970	3.04868	3.04766	3.04664	29.20
29.30	3.04563	3.04461	3.04360	3.04258	3.04157	3.04055	3.03954	3.03853	3.03752	3.03651	29.30
29.40	3.03550	3.03449	3.03348	3.03247	3.03146	3.03046	3.02945	3.02844	3.02744	3.02644	29.40
29.50	3.02543	3.02443	3.02343	3.02243	3.02143	3.02043	3.01943	3.01843	3.01743	3.01643	29.50
29.60	3.01544	3.01444	3.01345	3.01245	3.01146	3.01047	3.00948	3.00848	3.00749	3.00650	29.60
29.70	3.00551	3.00452	3.00354	3.00255	3.00156	3.00058	2.99959	2.99860	2.99762	2.99664	29.70
29.80	2.99565	2.99467	2.99369	2.99271	2.99173	2.99075	2.98977	2.98879	2.98782	2.98684	29.80
29.90	2.98586	2.98489	2.98391	2.98294	2.98196	2.98099	2.98002	2.97905	2.97808	2.97711	29.90
30.00	2.97614	2.97517	2.97420	2.97323	2.97227	2.97130	2.97033	2.96937	2.96840	2.96744	30.00
30.10	2.96648	2.96551	2.96455	2.96359	2.96263	2.96167	2.96071	2.95975	2.95880	2.95784	30.10
30.20	2.95688	2.95593	2.95497	2.95402	2.95306	2.95211	2.95116	2.95020	2.94925	2.94830	30.20
30.30	2.94735	2.94640	2.94545	2.94450	2.94356	2.94261	2.94166	2.94072	2.93977	2.93883	30.30
30.40	2.93788	2.93694	2.93600	2.93505	2.93411	2.93317	2.93223	2.93129	2.93035	2.92942	30.40
30.50	2.92848	2.92754	2.92660	2.92567	2.92473	2.92380	2.92286	2.92193	2.92100	2.92007	30.50
30.60	2.91913	2.91820	2.91727	2.91634	2.91541	2.91449	2.91356	2.91263	2.91171	2.91078	30.60
30.70	2.90985	2.90893	2.90800	2.90708	2.90616	2.90524	2.90431	2.90339	2.90247	2.90155	30.70
30.80	2.90063	2.89971	2.89880	2.89788	2.89696	2.89605	2.89513	2.89422	2.89330	2.89239	30.80
30.90	2.89147	2.89056	2.88965	2.88874	2.88783	2.88692	2.88601	2.88510	2.88419	2.88328	30.90
31.00	2.88237	2.88147	2.88056	2.87966	2.87875	2.87785	2.87694	2.87604	2.87514	2.87424	31.00
31.10	2.87333	2.87243	2.87153	2.87063	2.86973	2.86884	2.86794	2.86704	2.86614	2.86525	31.10
31.20	2.86435	2.86346	2.86256	2.86167	2.86078	2.85988	2.85899	2.85810	2.85721	2.85632	31.20
31.30	2.85543	2.85454	2.85365	2.85276	2.85187	2.85099	2.85010	2.84922	2.84833	2.84745	31.30
31.40	2.84656	2.84568	2.84480	2.84391	2.84303	2.84215	2.84127	2.84039	2.83951	2.83863	31.40
31.50	2.83775	2.83688	2.83600	2.83512	2.83425	2.83337	2.83249	2.83162	2.83075	2.82987	31.50
31.60	2.82900	2.82813	2.82726	2.82639	2.82552	2.82465	2.82378	2.82291	2.82204	2.82117	31.60
31.70	2.82030	2.81944	2.81857	2.81771	2.81684	2.81598	2.81511	2.81425	2.81339	2.81252	31.70
31.80	2.81166	2.81080	2.80994	2.80908	2.80822	2.80736	2.80650	2.80565	2.80479	2.80393	31.80
31.90	2.80308	2.80222	2.80137	2.80051	2.79966	2.79880	2.79795	2.79710	2.79625	2.79540	31.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
32.00	2.79455	2.79369	2.79285	2.79200	2.79115	2.79030	2.78945	2.78860	2.78776	2.78691	32.00
32.10	2.78607	2.78522	2.78438	2.78353	2.78269	2.78185	2.78101	2.78016	2.77932	2.77848	32.10
32.20	2.77764	2.77680	2.77596	2.77513	2.77429	2.77345	2.77261	2.77178	2.77094	2.77011	32.20
32.30	2.76927	2.76844	2.76760	2.76677	2.76594	2.76510	2.76427	2.76344	2.76261	2.76178	32.30
32.40	2.76095	2.76012	2.75929	2.75847	2.75764	2.75681	2.75599	2.75516	2.75433	2.75351	32.40
32.50	2.75268	2.75186	2.75104	2.75021	2.74939	2.74857	2.74775	2.74693	2.74611	2.74529	32.50
32.60	2.74447	2.74365	2.74283	2.74201	2.74120	2.74038	2.73956	2.73875	2.73793	2.73712	32.60
32.70	2.73630	2.73549	2.73468	2.73386	2.73305	2.73224	2.73143	2.73062	2.72981	2.72900	32.70
32.80	2.72819	2.72738	2.72657	2.72576	2.72496	2.72415	2.72334	2.72254	2.72173	2.72093	32.80
32.90	2.72013	2.71932	2.71852	2.71772	2.71691	2.71611	2.71531	2.71451	2.71371	2.71291	32.90
33.00	2.71211	2.71131	2.71051	2.70972	2.70892	2.70812	2.70733	2.70653	2.70573	2.70494	33.00
33.10	2.70414	2.70335	2.70256	2.70176	2.70097	2.70018	2.69939	2.69860	2.69781	2.69702	33.10
33.20	2.69623	2.69544	2.69465	2.69386	2.69307	2.69229	2.69150	2.69072	2.68993	2.68914	33.20
33.30	2.68836	2.68758	2.68679	2.68601	2.68523	2.68444	2.68366	2.68288	2.68210	2.68132	33.30
33.40	2.68054	2.67976	2.67898	2.67820	2.67742	2.67665	2.67587	2.67509	2.67432	2.67354	33.40
33.50	2.67277	2.67199	2.67122	2.67044	2.66967	2.66890	2.66812	2.66735	2.66658	2.66581	33.50
33.60	2.66504	2.66427	2.66350	2.66273	2.66196	2.66119	2.66043	2.65966	2.65889	2.65813	33.60
33.70	2.65736	2.65659	2.65583	2.65506	2.65430	2.65354	2.65277	2.65201	2.65125	2.65049	33.70
33.80	2.64973	2.64896	2.64820	2.64744	2.64668	2.64593	2.64517	2.64441	2.64365	2.64289	33.80
33.90	2.64214	2.64138	2.64063	2.63987	2.63912	2.63836	2.63761	2.63685	2.63610	2.63535	33.90
34.00	2.63459	2.63384	2.63309	2.63234	2.63159	2.63084	2.63009	2.62934	2.62859	2.62784	34.00
34.10	2.62710	2.62635	2.62560	2.62486	2.62411	2.62337	2.62262	2.62188	2.62113	2.62039	34.10
34.20	2.61964	2.61890	2.61816	2.61742	2.61668	2.61593	2.61519	2.61445	2.61371	2.61297	34.20
34.30	2.61224	2.61150	2.61076	2.61002	2.60928	2.60855	2.60781	2.60707	2.60634	2.60560	34.30
34.40	2.60487	2.60414	2.60340	2.60267	2.60194	2.60120	2.60047	2.59974	2.59901	2.59828	34.40
34.50	2.59755	2.59682	2.59609	2.59536	2.59463	2.59390	2.59318	2.59245	2.59172	2.59100	34.50
34.60	2.59027	2.58954	2.58882	2.58809	2.58737	2.58665	2.58592	2.58520	2.58448	2.58375	34.60
34.70	2.58303	2.58231	2.58159	2.58087	2.58015	2.57943	2.57871	2.57799	2.57727	2.57656	34.70
34.80	2.57584	2.57512	2.57441	2.57369	2.57297	2.57226	2.57154	2.57083	2.57011	2.56940	34.80
34.90	2.56869	2.56797	2.56726	2.56655	2.56584	2.56513	2.56442	2.56371	2.56300	2.56229	34.90
35.00	2.56158	2.56087	2.56016	2.55945	2.55874	2.55804	2.55733	2.55662	2.55592	2.55521	35.00
35.10	2.55451	2.55380	2.55310	2.55239	2.55169	2.55099	2.55029	2.54958	2.54888	2.54818	35.10
35.20	2.54748	2.54678	2.54608	2.54538	2.54468	2.54398	2.54328	2.54258	2.54189	2.54119	35.20
35.30	2.54049	2.53979	2.53910	2.53840	2.53771	2.53701	2.53632	2.53562	2.53493	2.53424	35.30
35.40	2.53354	2.53285	2.53216	2.53147	2.53078	2.53008	2.52939	2.52870	2.52801	2.52732	35.40
35.50	2.52664	2.52595	2.52526	2.52457	2.52388	2.52320	2.52251	2.52182	2.52114	2.52045	35.50
35.60	2.51977	2.51908	2.51840	2.51771	2.51703	2.51635	2.51566	2.51498	2.51430	2.51362	35.60
35.70	2.51294	2.51226	2.51158	2.51090	2.51022	2.50954	2.50886	2.50818	2.50750	2.50682	35.70
35.80	2.50615	2.50547	2.50479	2.50412	2.50344	2.50277	2.50209	2.50142	2.50074	2.50007	35.80
35.90	2.49940	2.49872	2.49805	2.49738	2.49671	2.49603	2.49536	2.49469	2.49402	2.49335	35.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
36.00	2.49268	2.49201	2.49134	2.49067	2.49001	2.48934	2.48867	2.48800	2.48734	2.48667	36.00
36.10	2.48601	2.48534	2.48468	2.48401	2.48335	2.48268	2.48202	2.48135	2.48069	2.48003	36.10
36.20	2.47937	2.47871	2.47804	2.47738	2.47672	2.47606	2.47540	2.47474	2.47408	2.47342	36.20
36.30	2.47277	2.47211	2.47145	2.47079	2.47014	2.46948	2.46882	2.46817	2.46751	2.46686	36.30
36.40	2.46620	2.46555	2.46489	2.46424	2.46359	2.46293	2.46228	2.46163	2.46098	2.46033	36.40
36.50	2.45967	2.45902	2.45837	2.45772	2.45707	2.45642	2.45578	2.45513	2.45448	2.45383	36.50
36.60	2.45318	2.45254	2.45189	2.45124	2.45060	2.44995	2.44931	2.44866	2.44802	2.44737	36.60
36.70	2.44673	2.44608	2.44544	2.44480	2.44416	2.44351	2.44287	2.44223	2.44159	2.44095	36.70
36.80	2.44031	2.43967	2.43903	2.43839	2.43775	2.43711	2.43647	2.43584	2.43520	2.43456	36.80
36.90	2.43392	2.43329	2.43265	2.43202	2.43138	2.43075	2.43011	2.42948	2.42884	2.42821	36.90
37.00	2.42758	2.42694	2.42631	2.42568	2.42505	2.42441	2.42378	2.42315	2.42252	2.42189	37.00
37.10	2.42126	2.42063	2.42000	2.41937	2.41875	2.41812	2.41749	2.41686	2.41624	2.41561	37.10
37.20	2.41498	2.41436	2.41373	2.41310	2.41248	2.41186	2.41123	2.41061	2.40998	2.40936	37.20
37.30	2.40874	2.40811	2.40749	2.40687	2.40625	2.40563	2.40501	2.40439	2.40377	2.40315	37.30
37.40	2.40253	2.40191	2.40129	2.40067	2.40005	2.39943	2.39882	2.39820	2.39758	2.39696	37.40
37.50	2.39635	2.39573	2.39512	2.39450	2.39389	2.39327	2.39266	2.39204	2.39143	2.39082	37.50
37.60	2.39020	2.38959	2.38898	2.38837	2.38776	2.38715	2.38653	2.38592	2.38531	2.38470	37.60
37.70	2.38409	2.38348	2.38288	2.38227	2.38166	2.38105	2.38044	2.37984	2.37923	2.37862	37.70
37.80	2.37802	2.37741	2.37681	2.37620	2.37559	2.37499	2.37439	2.37378	2.37318	2.37257	37.80
37.90	2.37197	2.37137	2.37077	2.37016	2.36956	2.36896	2.36836	2.36776	2.36716	2.36656	37.90
38.00	2.36596	2.36536	2.36476	2.36416	2.36356	2.36297	2.36237	2.36177	2.36117	2.36058	38.00
38.10	2.35998	2.35938	2.35879	2.35819	2.35760	2.35700	2.35641	2.35581	2.35522	2.35462	38.10
38.20	2.35403	2.35344	2.35284	2.35225	2.35166	2.35107	2.35048	2.34989	2.34929	2.34870	38.20
38.30	2.34811	2.34752	2.34693	2.34635	2.34576	2.34517	2.34458	2.34399	2.34340	2.34282	38.30
38.40	2.34223	2.34164	2.34106	2.34047	2.33988	2.33930	2.33871	2.33813	2.33754	2.33696	38.40
38.50	2.33638	2.33579	2.33521	2.33462	2.33404	2.33346	2.33288	2.33230	2.33171	2.33113	38.50
38.60	2.33055	2.32997	2.32939	2.32881	2.32823	2.32765	2.32707	2.32649	2.32592	2.32534	38.60
38.70	2.32476	2.32418	2.32361	2.32303	2.32245	2.32188	2.32130	2.32072	2.32015	2.31957	38.70
38.80	2.31900	2.31842	2.31785	2.31728	2.31670	2.31613	2.31556	2.31498	2.31441	2.31384	38.80
38.90	2.31327	2.31269	2.31212	2.31155	2.31098	2.31041	2.30984	2.30927	2.30870	2.30813	38.90
39.00	2.30756	2.30700	2.30643	2.30586	2.30529	2.30473	2.30416	2.30359	2.30303	2.30246	39.00
39.10	2.30189	2.30133	2.30076	2.30020	2.29963	2.29907	2.29850	2.29794	2.29738	2.29681	39.10
39.20	2.29625	2.29569	2.29513	2.29456	2.29400	2.29344	2.29288	2.29232	2.29176	2.29120	39.20
39.30	2.29064	2.29008	2.28952	2.28896	2.28840	2.28784	2.28728	2.28673	2.28617	2.28561	39.30
39.40	2.28505	2.28450	2.28394	2.28338	2.28283	2.28227	2.28172	2.28116	2.28061	2.28005	39.40
39.50	2.27950	2.27895	2.27839	2.27784	2.27729	2.27673	2.27618	2.27563	2.27508	2.27452	39.50
39.60	2.27397	2.27342	2.27287	2.27232	2.27177	2.27122	2.27067	2.27012	2.26957	2.26902	39.60
39.70	2.26848	2.26793	2.26738	2.26683	2.26628	2.26574	2.26519	2.26464	2.26410	2.26355	39.70
39.80	2.26301	2.26246	2.26192	2.26137	2.26083	2.26028	2.25974	2.25919	2.25865	2.25811	39.80
39.90	2.25756	2.25702	2.25648	2.25594	2.25540	2.25485	2.25431	2.25377	2.25323	2.25269	39.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
40.00	2.25215	2.25161	2.25107	2.25053	2.24999	2.24945	2.24892	2.24838	2.24784	2.24730	40.00
40.10	2.24676	2.24623	2.24569	2.24515	2.24462	2.24408	2.24355	2.24301	2.24248	2.24194	40.10
40.20	2.24141	2.24087	2.24034	2.23980	2.23927	2.23874	2.23820	2.23767	2.23714	2.23661	40.20
40.30	2.23607	2.23554	2.23501	2.23448	2.23395	2.23342	2.23289	2.23236	2.23183	2.23130	40.30
40.40	2.23077	2.23024	2.22971	2.22918	2.22866	2.22813	2.22760	2.22707	2.22655	2.22602	40.40
40.50	2.22549	2.22497	2.22444	2.22391	2.22339	2.22286	2.22234	2.22181	2.22129	2.22077	40.50
40.60	2.22024	2.21972	2.21919	2.21867	2.21815	2.21763	2.21710	2.21658	2.21606	2.21554	40.60
40.70	2.21502	2.21450	2.21398	2.21345	2.21293	2.21241	2.21189	2.21138	2.21086	2.21034	40.70
40.80	2.20982	2.20930	2.20878	2.20826	2.20775	2.20723	2.20671	2.20620	2.20568	2.20516	40.80
40.90	2.20465	2.20413	2.20361	2.20310	2.20258	2.20207	2.20156	2.20104	2.20053	2.20001	40.90
41.00	2.19950	2.19899	2.19847	2.19796	2.19745	2.19694	2.19642	2.19591	2.19540	2.19489	41.00
41.10	2.19438	2.19387	2.19336	2.19285	2.19234	2.19183	2.19132	2.19081	2.19030	2.18979	41.10
41.20	2.18928	2.18878	2.18827	2.18776	2.18725	2.18674	2.18624	2.18573	2.18522	2.18472	41.20
41.30	2.18421	2.18371	2.18320	2.18270	2.18219	2.18169	2.18118	2.18068	2.18017	2.17967	41.30
41.40	2.17917	2.17866	2.17816	2.17766	2.17716	2.17665	2.17615	2.17565	2.17515	2.17465	41.40
41.50	2.17415	2.17365	2.17315	2.17265	2.17215	2.17165	2.17115	2.17065	2.17015	2.16965	41.50
41.60	2.16915	2.16865	2.16816	2.16766	2.16716	2.16666	2.16617	2.16567	2.16517	2.16468	41.60
41.70	2.16418	2.16369	2.16319	2.16269	2.16220	2.16170	2.16121	2.16072	2.16022	2.15973	41.70
41.80	2.15923	2.15874	2.15825	2.15776	2.15726	2.15677	2.15628	2.15579	2.15529	2.15480	41.80
41.90	2.15431	2.15382	2.15333	2.15284	2.15235	2.15186	2.15137	2.15088	2.15039	2.14990	41.90
42.00	2.14941	2.14893	2.14844	2.14795	2.14746	2.14697	2.14649	2.14600	2.14551	2.14503	42.00
42.10	2.14454	2.14405	2.14357	2.14308	2.14260	2.14211	2.14163	2.14114	2.14066	2.14017	42.10
42.20	2.13969	2.13920	2.13872	2.13824	2.13775	2.13727	2.13679	2.13631	2.13582	2.13534	42.20
42.30	2.13486	2.13438	2.13390	2.13342	2.13294	2.13246	2.13198	2.13150	2.13102	2.13054	42.30
42.40	2.13006	2.12958	2.12910	2.12862	2.12814	2.12766	2.12719	2.12671	2.12623	2.12575	42.40
42.50	2.12528	2.12480	2.12432	2.12385	2.12337	2.12289	2.12242	2.12194	2.12147	2.12099	42.50
42.60	2.12052	2.12004	2.11957	2.11910	2.11862	2.11815	2.11767	2.11720	2.11673	2.11626	42.60
42.70	2.11578	2.11531	2.11484	2.11437	2.11390	2.11342	2.11295	2.11248	2.11201	2.11154	42.70
42.80	2.11107	2.11060	2.11013	2.10966	2.10919	2.10872	2.10826	2.10779	2.10732	2.10685	42.80
42.90	2.10638	2.10591	2.10545	2.10498	2.10451	2.10405	2.10358	2.10311	2.10265	2.10218	42.90
43.00	2.10171	2.10125	2.10076	2.10032	2.09985	2.09939	2.09892	2.09846	2.09800	2.09753	43.00
43.10	2.09707	2.09661	2.09614	2.09568	2.09522	2.09476	2.09429	2.09383	2.09337	2.09291	43.10
43.20	2.09245	2.09199	2.09152	2.09106	2.09060	2.09014	2.08968	2.08922	2.08876	2.08830	43.20
43.30	2.08785	2.08739	2.08693	2.08647	2.08601	2.08555	2.08510	2.08464	2.08418	2.08372	43.30
43.40	2.08327	2.08281	2.08235	2.08190	2.08144	2.08098	2.08053	2.08007	2.07962	2.07916	43.40
43.50	2.07871	2.07825	2.07780	2.07735	2.07689	2.07644	2.07598	2.07553	2.07508	2.07463	43.50
43.60	2.07417	2.07372	2.07327	2.07282	2.07236	2.07191	2.07146	2.07101	2.07056	2.07011	43.60
43.70	2.06966	2.06921	2.06876	2.06831	2.06786	2.06741	2.06696	2.06651	2.06606	2.06561	43.70
43.80	2.06516	2.06472	2.06427	2.06382	2.06337	2.06293	2.06248	2.06203	2.06158	2.06114	43.80
43.90	2.06069	2.06025	2.05980	2.05935	2.05891	2.05846	2.05802	2.05757	2.05713	2.05668	43.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
44.00	2.05624	2.05580	2.05535	2.05491	2.05446	2.05402	2.05358	2.05314	2.05269	2.05225	44.00
44.10	2.05181	2.05137	2.05093	2.05048	2.05004	2.04960	2.04916	2.04872	2.04828	2.04784	44.10
44.20	2.04740	2.04696	2.04652	2.04608	2.04564	2.04520	2.04476	2.04432	2.04388	2.04345	44.20
44.30	2.04301	2.04257	2.04213	2.04170	2.04126	2.04082	2.04038	2.03995	2.03951	2.03908	44.30
44.40	2.03864	2.03820	2.03777	2.03733	2.03690	2.03646	2.03603	2.03559	2.03516	2.03472	44.40
44.50	2.03429	2.03386	2.03342	2.03299	2.03256	2.03212	2.03169	2.03126	2.03082	2.03039	44.50
44.60	2.02996	2.02953	2.02910	2.02867	2.02823	2.02780	2.02737	2.02694	2.02651	2.02608	44.60
44.70	2.02565	2.02522	2.02479	2.02436	2.02393	2.02350	2.02307	2.02265	2.02222	2.02179	44.70
44.80	2.02136	2.02093	2.02051	2.02008	2.01965	2.01922	2.01880	2.01837	2.01794	2.01752	44.80
44.90	2.01709	2.01667	2.01624	2.01581	2.01539	2.01496	2.01454	2.01411	2.01369	2.01327	44.90
45.00	2.01284	2.01242	2.01199	2.01157	2.01115	2.01072	2.01030	2.00988	2.00945	2.00903	45.00
45.10	2.00861	2.00819	2.00777	2.00734	2.00692	2.00650	2.00608	2.00566	2.00524	2.00482	45.10
45.20	2.00440	2.00398	2.00356	2.00314	2.00272	2.00230	2.00188	2.00146	2.00104	2.00062	45.20
45.30	2.00021	1.99979	1.99937	1.99895	1.99853	1.99812	1.99770	1.99728	1.99687	1.99645	45.30
45.40	1.99603	1.99562	1.99520	1.99478	1.99437	1.99395	1.99354	1.99312	1.99271	1.99229	45.40
45.50	1.99188	1.99146	1.99105	1.99064	1.99022	1.98981	1.98939	1.98898	1.98857	1.98815	45.50
45.60	1.98774	1.98733	1.98692	1.98650	1.98609	1.98568	1.98527	1.98486	1.98445	1.98404	45.60
45.70	1.98362	1.98321	1.98280	1.98239	1.98198	1.98157	1.98116	1.98075	1.98034	1.97994	45.70
45.80	1.97953	1.97912	1.97871	1.97830	1.97789	1.97748	1.97708	1.97667	1.97626	1.97585	45.80
45.90	1.97545	1.97504	1.97463	1.97423	1.97382	1.97341	1.97301	1.97260	1.97219	1.97179	45.90
46.00	1.97138	1.97098	1.97057	1.97017	1.96976	1.96936	1.96896	1.96855	1.96815	1.96774	46.00
46.10	1.96734	1.96694	1.96653	1.96613	1.96573	1.96532	1.96492	1.96452	1.96412	1.96372	46.10
46.20	1.96331	1.96291	1.96251	1.96211	1.96171	1.96131	1.96091	1.96051	1.96011	1.95971	46.20
46.30	1.95931	1.95891	1.95851	1.95811	1.95771	1.95731	1.95691	1.95651	1.95611	1.95571	46.30
46.40	1.95532	1.95492	1.95452	1.95412	1.95373	1.95333	1.95293	1.95253	1.95214	1.95174	46.40
46.50	1.95134	1.95095	1.95055	1.95016	1.94976	1.94936	1.94897	1.94857	1.94818	1.94778	46.50
46.60	1.94739	1.94699	1.94660	1.94621	1.94581	1.94542	1.94502	1.94463	1.94424	1.94384	46.60
46.70	1.94345	1.94306	1.94267	1.94227	1.94188	1.94149	1.94110	1.94071	1.94031	1.93992	46.70
46.80	1.93953	1.93914	1.93875	1.93836	1.93797	1.93758	1.93719	1.93680	1.93641	1.93602	46.80
46.90	1.93563	1.93524	1.93485	1.93446	1.93407	1.93368	1.93330	1.93291	1.93252	1.93213	46.90
47.00	1.93174	1.93136	1.93097	1.93058	1.93019	1.92981	1.92942	1.92903	1.92865	1.92826	47.00
47.10	1.92788	1.92749	1.92710	1.92672	1.92633	1.92595	1.92556	1.92518	1.92479	1.92441	47.10
47.20	1.92402	1.92364	1.92326	1.92287	1.92249	1.92210	1.92172	1.92134	1.92095	1.92057	47.20
47.30	1.92019	1.91981	1.91942	1.91904	1.91866	1.91828	1.91790	1.91751	1.91713	1.91675	47.30
47.40	1.91637	1.91599	1.91561	1.91523	1.91485	1.91447	1.91409	1.91371	1.91333	1.91295	47.40
47.50	1.91257	1.91219	1.91181	1.91143	1.91105	1.91067	1.91030	1.90992	1.90954	1.90916	47.50
47.60	1.90878	1.90841	1.90803	1.90765	1.90728	1.90690	1.90652	1.90614	1.90577	1.90539	47.60
47.70	1.90502	1.90464	1.90426	1.90389	1.90351	1.90314	1.90276	1.90239	1.90201	1.90164	47.70
47.80	1.90126	1.90089	1.90052	1.90014	1.89977	1.89939	1.89902	1.89865	1.89827	1.89790	47.80
47.90	1.89753	1.89715	1.89678	1.89641	1.89604	1.89567	1.89529	1.89492	1.89455	1.89418	47.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
48.00	1.89381	1.89344	1.89307	1.89269	1.89232	1.89195	1.89158	1.89121	1.89084	1.89047	48.00
48.10	1.89010	1.88973	1.88936	1.88900	1.88863	1.88826	1.88789	1.88752	1.88715	1.88678	48.10
48.20	1.88642	1.88605	1.88568	1.88531	1.88494	1.88458	1.88421	1.88384	1.88348	1.88311	48.20
48.30	1.88274	1.88238	1.88201	1.88164	1.88128	1.88091	1.88055	1.88018	1.87982	1.87945	48.30
48.40	1.87909	1.87872	1.87836	1.87799	1.87763	1.87726	1.87690	1.87654	1.87617	1.87581	48.40
48.50	1.87545	1.87508	1.87472	1.87436	1.87399	1.87363	1.87327	1.87291	1.87254	1.87218	48.50
48.60	1.87182	1.87146	1.87110	1.87074	1.87037	1.87001	1.86965	1.86929	1.86893	1.86857	48.60
48.70	1.86821	1.86785	1.86749	1.86713	1.86677	1.86641	1.86605	1.86569	1.86533	1.86497	48.70
48.80	1.86462	1.86426	1.86390	1.86354	1.86318	1.86282	1.86247	1.86211	1.86175	1.86139	48.80
48.90	1.86104	1.86068	1.86032	1.85997	1.85961	1.85925	1.85890	1.85854	1.85818	1.85783	48.90
49.00	1.85747	1.85712	1.85676	1.85641	1.85605	1.85570	1.85534	1.85499	1.85463	1.85428	49.00
49.10	1.85392	1.85357	1.85321	1.85286	1.85251	1.85215	1.85180	1.85145	1.85109	1.85074	49.10
49.20	1.85039	1.85004	1.84968	1.84933	1.84898	1.84863	1.84827	1.84792	1.84757	1.84722	49.20
49.30	1.84687	1.84652	1.84617	1.84582	1.84546	1.84511	1.84476	1.84441	1.84406	1.84371	49.30
49.40	1.84336	1.84301	1.84266	1.84232	1.84197	1.84162	1.84127	1.84092	1.84057	1.84022	49.40
49.50	1.83987	1.83953	1.83918	1.83883	1.83848	1.83813	1.83779	1.83744	1.83709	1.83674	49.50
49.60	1.83640	1.83605	1.83570	1.83536	1.83501	1.83467	1.83432	1.83397	1.83363	1.83328	49.60
49.70	1.83294	1.83259	1.83225	1.83190	1.83156	1.83121	1.83087	1.83052	1.83018	1.82983	49.70
49.80	1.82949	1.82915	1.82880	1.82846	1.82812	1.82777	1.82743	1.82709	1.82674	1.82640	49.80
49.90	1.82606	1.82572	1.82537	1.82503	1.82469	1.82435	1.82401	1.82366	1.82332	1.82298	49.90
50.00	1.82264	1.82230	1.82196	1.82162	1.82128	1.82094	1.82060	1.82026	1.81992	1.81958	50.00
50.10	1.81924	1.81890	1.81856	1.81822	1.81788	1.81754	1.81720	1.81686	1.81652	1.81618	50.10
50.20	1.81585	1.81551	1.81517	1.81483	1.81449	1.81416	1.81382	1.81348	1.81314	1.81281	50.20
50.30	1.81247	1.81213	1.81180	1.81146	1.81112	1.81079	1.81045	1.81012	1.80978	1.80944	50.30
50.40	1.80911	1.80877	1.80844	1.80810	1.80777	1.80743	1.80710	1.80676	1.80643	1.80609	50.40
50.50	1.80576	1.80543	1.80509	1.80476	1.80443	1.80409	1.80376	1.80343	1.80309	1.80276	50.50
50.60	1.80243	1.80209	1.80176	1.80143	1.80110	1.80076	1.80043	1.80010	1.79977	1.79944	50.60
50.70	1.79911	1.79877	1.79844	1.79811	1.79778	1.79745	1.79712	1.79679	1.79646	1.79613	50.70
50.80	1.79580	1.79547	1.79514	1.79481	1.79448	1.79415	1.79382	1.79349	1.79316	1.79283	50.80
50.90	1.79250	1.79218	1.79185	1.79152	1.79119	1.79086	1.79053	1.79021	1.78988	1.78955	50.90
51.00	1.78922	1.78890	1.78857	1.78824	1.78792	1.78759	1.78726	1.78694	1.78661	1.78628	51.00
51.10	1.78596	1.78563	1.78531	1.78498	1.78465	1.78433	1.78400	1.78368	1.78335	1.78303	51.10
51.20	1.78270	1.78238	1.78205	1.78173	1.78141	1.78108	1.78076	1.78043	1.78011	1.77979	51.20
51.30	1.77946	1.77914	1.77882	1.77849	1.77817	1.77785	1.77753	1.77720	1.77688	1.77656	51.30
51.40	1.77624	1.77591	1.77559	1.77527	1.77495	1.77463	1.77431	1.77398	1.77366	1.77334	51.40
51.50	1.77302	1.77270	1.77238	1.77206	1.77174	1.77142	1.77110	1.77078	1.77046	1.77014	51.50
51.60	1.76982	1.76950	1.76918	1.76886	1.76854	1.76822	1.76791	1.76759	1.76727	1.76695	51.60
51.70	1.76663	1.76631	1.76600	1.76568	1.76536	1.76504	1.76473	1.76441	1.76409	1.76377	51.70
51.80	1.76346	1.76314	1.76282	1.76251	1.76219	1.76187	1.76156	1.76124	1.76093	1.76061	51.80
51.90	1.76029	1.75998	1.75966	1.75935	1.75903	1.75872	1.75840	1.75809	1.75777	1.75746	51.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
52.00	1.75714	1.75683	1.75651	1.75620	1.75589	1.75557	1.75526	1.75495	1.75463	1.75432	52.00
52.10	1.75401	1.75369	1.75338	1.75307	1.75275	1.75244	1.75213	1.75182	1.75150	1.75119	52.10
52.20	1.75088	1.75057	1.75026	1.74995	1.74963	1.74932	1.74901	1.74870	1.74839	1.74808	52.20
52.30	1.74777	1.74746	1.74715	1.74684	1.74653	1.74622	1.74591	1.74560	1.74529	1.74498	52.30
52.40	1.74467	1.74436	1.74405	1.74374	1.74343	1.74312	1.74281	1.74250	1.74220	1.74189	52.40
52.50	1.74158	1.74127	1.74096	1.74066	1.74035	1.74004	1.73973	1.73943	1.73912	1.73881	52.50
52.60	1.73850	1.73820	1.73789	1.73758	1.73728	1.73697	1.73666	1.73636	1.73605	1.73575	52.60
52.70	1.73544	1.73513	1.73483	1.73452	1.73422	1.73391	1.73361	1.73330	1.73300	1.73269	52.70
52.80	1.73239	1.73208	1.73178	1.73148	1.73117	1.73087	1.73056	1.73026	1.72996	1.72965	52.80
52.90	1.72935	1.72905	1.72874	1.72844	1.72814	1.72783	1.72753	1.72723	1.72693	1.72662	52.90
53.00	1.72632	1.72602	1.72572	1.72542	1.72511	1.72481	1.72451	1.72421	1.72391	1.72361	53.00
53.10	1.72331	1.72301	1.72270	1.72240	1.72210	1.72180	1.72150	1.72120	1.72090	1.72060	53.10
53.20	1.72030	1.72000	1.71970	1.71940	1.71910	1.71880	1.71851	1.71821	1.71791	1.71761	53.20
53.30	1.71731	1.71701	1.71671	1.71641	1.71612	1.71582	1.71552	1.71522	1.71493	1.71463	53.30
53.40	1.71433	1.71403	1.71374	1.71344	1.71314	1.71284	1.71255	1.71225	1.71195	1.71166	53.40
53.50	1.71136	1.71106	1.71077	1.71047	1.71018	1.70988	1.70959	1.70929	1.70899	1.70870	53.50
53.60	1.70840	1.70811	1.70781	1.70752	1.70722	1.70693	1.70664	1.70634	1.70605	1.70575	53.60
53.70	1.70546	1.70516	1.70487	1.70458	1.70428	1.70399	1.70370	1.70340	1.70311	1.70282	53.70
53.80	1.70252	1.70223	1.70194	1.70165	1.70135	1.70106	1.70077	1.70048	1.70018	1.69989	53.80
53.90	1.69960	1.69931	1.69902	1.69873	1.69844	1.69814	1.69785	1.69756	1.69727	1.69698	53.90
54.00	1.69669	1.69640	1.69611	1.69582	1.69553	1.69524	1.69495	1.69466	1.69437	1.69408	54.00
54.10	1.69379	1.69350	1.69321	1.69292	1.69263	1.69234	1.69205	1.69177	1.69148	1.69119	54.10
54.20	1.69090	1.69061	1.69032	1.69004	1.68975	1.68946	1.68917	1.68888	1.68860	1.68831	54.20
54.30	1.68802	1.68774	1.68745	1.68716	1.68687	1.68659	1.68630	1.68601	1.68573	1.68544	54.30
54.40	1.68516	1.68487	1.68458	1.68430	1.68401	1.68373	1.68344	1.68316	1.68287	1.68258	54.40
54.50	1.68230	1.68201	1.68173	1.68144	1.68116	1.68088	1.68059	1.68031	1.68002	1.67974	54.50
54.60	1.67945	1.67917	1.67889	1.67860	1.67832	1.67804	1.67775	1.67747	1.67719	1.67690	54.60
54.70	1.67662	1.67634	1.67605	1.67577	1.67549	1.67521	1.67492	1.67464	1.67436	1.67408	54.70
54.80	1.67380	1.67352	1.67323	1.67295	1.67267	1.67239	1.67211	1.67183	1.67155	1.67127	54.80
54.90	1.67098	1.67070	1.67042	1.67014	1.66986	1.66958	1.66930	1.66902	1.66874	1.66846	54.90
55.00	1.66818	1.66790	1.66762	1.66734	1.66706	1.66679	1.66651	1.66623	1.66595	1.66567	55.00
55.10	1.66539	1.66511	1.66483	1.66456	1.66428	1.66400	1.66372	1.66344	1.66317	1.66289	55.10
55.20	1.66261	1.66233	1.66206	1.66178	1.66150	1.66122	1.66095	1.66067	1.66039	1.66012	55.20
55.30	1.65984	1.65956	1.65929	1.65901	1.65874	1.65846	1.65818	1.65791	1.65763	1.65736	55.30
55.40	1.65708	1.65681	1.65653	1.65626	1.65598	1.65571	1.65543	1.65516	1.65488	1.65461	55.40
55.50	1.65433	1.65406	1.65378	1.65351	1.65324	1.65296	1.65269	1.65241	1.65214	1.65187	55.50
55.60	1.65159	1.65132	1.65105	1.65077	1.65050	1.65023	1.64995	1.64968	1.64941	1.64914	55.60
55.70	1.64886	1.64859	1.64832	1.64805	1.64778	1.64750	1.64723	1.64696	1.64669	1.64642	55.70
55.80	1.64615	1.64588	1.64560	1.64533	1.64506	1.64479	1.64452	1.64425	1.64398	1.64371	55.80
55.90	1.64344	1.64317	1.64290	1.64263	1.64236	1.64209	1.64182	1.64155	1.64128	1.64101	55.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
56.00	1.64074	1.64047	1.64020	1.63993	1.63966	1.63940	1.63913	1.63886	1.63859	1.63832	56.00
56.10	1.63805	1.63778	1.63752	1.63725	1.63698	1.63671	1.63644	1.63618	1.63591	1.63564	56.10
56.20	1.63537	1.63511	1.63484	1.63457	1.63431	1.63404	1.63377	1.63351	1.63324	1.63297	56.20
56.30	1.63271	1.63244	1.63217	1.63191	1.63164	1.63138	1.63111	1.63085	1.63058	1.63031	56.30
56.40	1.63005	1.62978	1.62952	1.62925	1.62899	1.62872	1.62846	1.62819	1.62793	1.62767	56.40
56.50	1.62740	1.62714	1.62687	1.62661	1.62634	1.62608	1.62582	1.62555	1.62529	1.62503	56.50
56.60	1.62476	1.62450	1.62424	1.62397	1.62371	1.62345	1.62318	1.62292	1.62266	1.62240	56.60
56.70	1.62213	1.62187	1.62161	1.62135	1.62109	1.62082	1.62056	1.62030	1.62004	1.61978	56.70
56.80	1.61952	1.61925	1.61899	1.61873	1.61847	1.61821	1.61795	1.61769	1.61743	1.61717	56.80
56.90	1.61691	1.61665	1.61639	1.61613	1.61587	1.61561	1.61535	1.61509	1.61483	1.61457	56.90
57.00	1.61431	1.61405	1.61379	1.61353	1.61327	1.61301	1.61275	1.61249	1.61223	1.61198	57.00
57.10	1.61172	1.61146	1.61120	1.61094	1.61068	1.61043	1.61017	1.60991	1.60965	1.60940	57.10
57.20	1.60914	1.60888	1.60862	1.60837	1.60811	1.60785	1.60759	1.60734	1.60708	1.60682	57.20
57.30	1.60657	1.60631	1.60605	1.60580	1.60554	1.60528	1.60503	1.60477	1.60452	1.60426	57.30
57.40	1.60401	1.60375	1.60349	1.60324	1.60298	1.60273	1.60247	1.60222	1.60196	1.60171	57.40
57.50	1.60145	1.60120	1.60094	1.60069	1.60043	1.60018	1.59993	1.59967	1.59942	1.59916	57.50
57.60	1.59891	1.59866	1.59840	1.59815	1.59790	1.59764	1.59739	1.59714	1.59688	1.59663	57.60
57.70	1.59638	1.59612	1.59587	1.59562	1.59537	1.59511	1.59486	1.59461	1.59436	1.59410	57.70
57.80	1.59385	1.59360	1.59335	1.59310	1.59285	1.59259	1.59234	1.59209	1.59184	1.59159	57.80
57.90	1.59134	1.59109	1.59084	1.59059	1.59033	1.59008	1.58983	1.58958	1.58933	1.58908	57.90
58.00	1.58883	1.58858	1.58833	1.58808	1.58783	1.58758	1.58733	1.58708	1.58683	1.58658	58.00
58.10	1.58634	1.58609	1.58584	1.58559	1.58534	1.58509	1.58484	1.58459	1.58434	1.58410	58.10
58.20	1.58385	1.58360	1.58335	1.58310	1.58285	1.58261	1.58236	1.58211	1.58186	1.58162	58.20
58.30	1.58137	1.58112	1.58087	1.58063	1.58038	1.58013	1.57989	1.57964	1.57939	1.57915	58.30
58.40	1.57890	1.57865	1.57841	1.57816	1.57791	1.57767	1.57742	1.57718	1.57693	1.57668	58.40
58.50	1.57644	1.57619	1.57595	1.57570	1.57546	1.57521	1.57497	1.57472	1.57448	1.57423	58.50
58.60	1.57399	1.57374	1.57350	1.57325	1.57301	1.57276	1.57252	1.57227	1.57203	1.57179	58.60
58.70	1.57154	1.57130	1.57105	1.57081	1.57057	1.57032	1.57008	1.56984	1.56959	1.56935	58.70
58.80	1.56911	1.56887	1.56862	1.56838	1.56814	1.56789	1.56765	1.56741	1.56717	1.56692	58.80
58.90	1.56668	1.56644	1.56620	1.56596	1.56571	1.56547	1.56523	1.56499	1.56475	1.56451	58.90
59.00	1.56427	1.56402	1.56378	1.56354	1.56330	1.56306	1.56282	1.56258	1.56234	1.56210	59.00
59.10	1.56186	1.56162	1.56138	1.56114	1.56090	1.56066	1.56042	1.56018	1.55994	1.55970	59.10
59.20	1.55946	1.55922	1.55898	1.55874	1.55850	1.55826	1.55802	1.55778	1.55754	1.55730	59.20
59.30	1.55707	1.55683	1.55659	1.55635	1.55611	1.55587	1.55563	1.55540	1.55516	1.55492	59.30
59.40	1.55468	1.55444	1.55421	1.55397	1.55373	1.55349	1.55326	1.55302	1.55278	1.55255	59.40
59.50	1.55231	1.55207	1.55183	1.55160	1.55136	1.55112	1.55089	1.55065	1.55041	1.55018	59.50
59.60	1.54994	1.54971	1.54947	1.54923	1.54900	1.54876	1.54853	1.54829	1.54806	1.54782	59.60
59.70	1.54758	1.54735	1.54711	1.54688	1.54664	1.54641	1.54617	1.54594	1.54570	1.54547	59.70
59.80	1.54524	1.54500	1.54477	1.54453	1.54430	1.54406	1.54383	1.54360	1.54336	1.54313	59.80
59.90	1.54289	1.54266	1.54243	1.54219	1.54196	1.54173	1.54149	1.54126	1.54103	1.54079	59.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
60.00	1.54056	1.54033	1.54010	1.53986	1.53963	1.53940	1.53917	1.53893	1.53870	1.53847	60.00
60.10	1.53824	1.53801	1.53777	1.53754	1.53731	1.53708	1.53685	1.53662	1.53638	1.53615	60.10
60.20	1.53592	1.53569	1.53546	1.53523	1.53500	1.53477	1.53454	1.53430	1.53407	1.53384	60.20
60.30	1.53361	1.53338	1.53315	1.53292	1.53269	1.53246	1.53223	1.53200	1.53177	1.53154	60.30
60.40	1.53131	1.53108	1.53085	1.53062	1.53040	1.53017	1.52994	1.52971	1.52948	1.52925	60.40
60.50	1.52902	1.52879	1.52856	1.52833	1.52811	1.52788	1.52765	1.52742	1.52719	1.52697	60.50
60.60	1.52674	1.52651	1.52628	1.52605	1.52583	1.52560	1.52537	1.52514	1.52492	1.52469	60.60
60.70	1.52446	1.52423	1.52401	1.52378	1.52355	1.52333	1.52310	1.52287	1.52265	1.52242	60.70
60.80	1.52219	1.52197	1.52174	1.52151	1.52129	1.52106	1.52084	1.52061	1.52038	1.52016	60.80
60.90	1.51993	1.51971	1.51948	1.51926	1.51903	1.51881	1.51858	1.51836	1.51813	1.51791	60.90
61.00	1.51768	1.51746	1.51723	1.51701	1.51678	1.51656	1.51633	1.51611	1.51588	1.51566	61.00
61.10	1.51544	1.51521	1.51499	1.51476	1.51454	1.51432	1.51409	1.51387	1.51365	1.51342	61.10
61.20	1.51320	1.51298	1.51275	1.51253	1.51231	1.51208	1.51186	1.51164	1.51142	1.51119	61.20
61.30	1.51097	1.51075	1.51053	1.51030	1.51008	1.50986	1.50964	1.50941	1.50919	1.50897	61.30
61.40	1.50875	1.50853	1.50831	1.50808	1.50786	1.50764	1.50742	1.50720	1.50698	1.50676	61.40
61.50	1.50654	1.50631	1.50609	1.50587	1.50565	1.50543	1.50521	1.50499	1.50477	1.50455	61.50
61.60	1.50433	1.50411	1.50389	1.50367	1.50345	1.50323	1.50301	1.50279	1.50257	1.50235	61.60
61.70	1.50213	1.50191	1.50169	1.50147	1.50125	1.50103	1.50082	1.50060	1.50038	1.50016	61.70
61.80	1.49994	1.49972	1.49950	1.49928	1.49907	1.49885	1.49863	1.49841	1.49819	1.49797	61.80
61.90	1.49776	1.49754	1.49732	1.49710	1.49689	1.49667	1.49645	1.49623	1.49602	1.49580	61.90
62.00	1.49558	1.49536	1.49515	1.49493	1.49471	1.49450	1.49428	1.49406	1.49385	1.49363	62.00
62.10	1.49341	1.49320	1.49298	1.49276	1.49255	1.49233	1.49211	1.49190	1.49168	1.49147	62.10
62.20	1.49125	1.49104	1.49082	1.49060	1.49039	1.49017	1.48996	1.48974	1.48953	1.48931	62.20
62.30	1.48910	1.48888	1.48867	1.48845	1.48824	1.48802	1.48781	1.48759	1.48738	1.48717	62.30
62.40	1.48695	1.48674	1.48652	1.48631	1.48609	1.48588	1.48567	1.48545	1.48524	1.48503	62.40
62.50	1.48481	1.48460	1.48439	1.48417	1.48396	1.48375	1.48353	1.48332	1.48311	1.48289	62.50
62.60	1.48268	1.48247	1.48226	1.48204	1.48183	1.48162	1.48141	1.48119	1.48098	1.48077	62.60
62.70	1.48056	1.48034	1.48013	1.47992	1.47971	1.47950	1.47929	1.47907	1.47886	1.47865	62.70
62.80	1.47844	1.47823	1.47802	1.47781	1.47759	1.47738	1.47717	1.47696	1.47675	1.47654	62.80
62.90	1.47633	1.47612	1.47591	1.47570	1.47549	1.47528	1.47507	1.47486	1.47465	1.47444	62.90
63.00	1.47423	1.47402	1.47381	1.47360	1.47339	1.47318	1.47297	1.47276	1.47255	1.47234	63.00
63.10	1.47213	1.47192	1.47171	1.47150	1.47129	1.47108	1.47088	1.47067	1.47046	1.47025	63.10
63.20	1.47004	1.46983	1.46962	1.46942	1.46921	1.46900	1.46879	1.46858	1.46838	1.46817	63.20
63.30	1.46796	1.46775	1.46754	1.46734	1.46713	1.46692	1.46671	1.46651	1.46630	1.46609	63.30
63.40	1.46588	1.46568	1.46547	1.46526	1.46506	1.46485	1.46464	1.46444	1.46423	1.46402	63.40
63.50	1.46382	1.46361	1.46340	1.46320	1.46299	1.46279	1.46258	1.46237	1.46217	1.46196	63.50
63.60	1.46176	1.46155	1.46135	1.46114	1.46093	1.46073	1.46052	1.46032	1.46011	1.45991	63.60
63.70	1.45970	1.45950	1.45929	1.45909	1.45888	1.45868	1.45847	1.45827	1.45806	1.45786	63.70
63.80	1.45766	1.45745	1.45725	1.45704	1.45684	1.45663	1.45643	1.45623	1.45602	1.45582	63.80
63.90	1.45562	1.45541	1.45521	1.45500	1.45480	1.45460	1.45439	1.45419	1.45399	1.45378	63.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
64.00	1.45358	1.45338	1.45318	1.45297	1.45277	1.45257	1.45237	1.45216	1.45196	1.45176	64.00
64.10	1.45156	1.45135	1.45115	1.45095	1.45075	1.45054	1.45034	1.45014	1.44994	1.44974	64.10
64.20	1.44954	1.44933	1.44913	1.44893	1.44873	1.44853	1.44833	1.44813	1.44792	1.44772	64.20
64.30	1.44752	1.44732	1.44712	1.44692	1.44672	1.44652	1.44632	1.44612	1.44592	1.44572	64.30
64.40	1.44552	1.44532	1.44512	1.44492	1.44471	1.44451	1.44431	1.44412	1.44392	1.44372	64.40
64.50	1.44352	1.44332	1.44312	1.44292	1.44272	1.44252	1.44232	1.44212	1.44192	1.44172	64.50
64.60	1.44152	1.44132	1.44112	1.44093	1.44073	1.44053	1.44033	1.44013	1.43993	1.43973	64.60
64.70	1.43954	1.43934	1.43914	1.43894	1.43874	1.43855	1.43835	1.43815	1.43795	1.43775	64.70
64.80	1.43756	1.43736	1.43716	1.43696	1.43677	1.43657	1.43637	1.43617	1.43598	1.43578	64.80
64.90	1.43558	1.43539	1.43519	1.43499	1.43479	1.43460	1.43440	1.43420	1.43401	1.43381	64.90
65.00	1.43362	1.43342	1.43322	1.43303	1.43283	1.43263	1.43244	1.43224	1.43205	1.43185	65.00
65.10	1.43165	1.43146	1.43126	1.43107	1.43087	1.43068	1.43048	1.43029	1.43009	1.42990	65.10
65.20	1.42970	1.42951	1.42931	1.42912	1.42892	1.42873	1.42853	1.42834	1.42814	1.42795	65.20
65.30	1.42775	1.42756	1.42736	1.42717	1.42698	1.42678	1.42659	1.42639	1.42620	1.42601	65.30
65.40	1.42581	1.42562	1.42542	1.42523	1.42504	1.42484	1.42465	1.42446	1.42426	1.42407	65.40
65.50	1.42388	1.42368	1.42349	1.42330	1.42310	1.42291	1.42272	1.42253	1.42233	1.42214	65.50
65.60	1.42195	1.42176	1.42156	1.42137	1.42118	1.42099	1.42079	1.42060	1.42041	1.42022	65.60
65.70	1.42003	1.41983	1.41964	1.41945	1.41926	1.41907	1.41888	1.41868	1.41849	1.41830	65.70
65.80	1.41811	1.41792	1.41773	1.41754	1.41735	1.41715	1.41696	1.41677	1.41658	1.41639	65.80
65.90	1.41620	1.41601	1.41582	1.41563	1.41544	1.41525	1.41506	1.41487	1.41468	1.41449	65.90
66.00	1.41430	1.41411	1.41392	1.41373	1.41354	1.41335	1.41316	1.41297	1.41278	1.41259	66.00
66.10	1.41240	1.41221	1.41202	1.41183	1.41164	1.41145	1.41126	1.41107	1.41089	1.41070	66.10
66.20	1.41051	1.41032	1.41013	1.40994	1.40975	1.40956	1.40938	1.40919	1.40900	1.40881	66.20
66.30	1.40862	1.40843	1.40825	1.40806	1.40787	1.40768	1.40749	1.40731	1.40712	1.40693	66.30
66.40	1.40674	1.40656	1.40637	1.40618	1.40599	1.40581	1.40562	1.40543	1.40524	1.40506	66.40
66.50	1.40487	1.40468	1.40450	1.40431	1.40412	1.40394	1.40375	1.40356	1.40338	1.40319	66.50
66.60	1.40300	1.40282	1.40263	1.40244	1.40226	1.40207	1.40189	1.40170	1.40151	1.40133	66.60
66.70	1.40114	1.40096	1.40077	1.40059	1.40040	1.40021	1.40003	1.39984	1.39966	1.39947	66.70
66.80	1.39929	1.39910	1.39892	1.39873	1.39855	1.39836	1.39818	1.39799	1.39781	1.39762	66.80
66.90	1.39744	1.39725	1.39707	1.39689	1.39670	1.39652	1.39633	1.39615	1.39596	1.39578	66.90
67.00	1.39560	1.39541	1.39523	1.39504	1.39486	1.39468	1.39449	1.39431	1.39413	1.39394	67.00
67.10	1.39376	1.39358	1.39339	1.39321	1.39303	1.39284	1.39266	1.39248	1.39229	1.39211	67.10
67.20	1.39193	1.39174	1.39156	1.39138	1.39120	1.39101	1.39083	1.39065	1.39047	1.39028	67.20
67.30	1.39010	1.38992	1.38974	1.38956	1.38937	1.38919	1.38901	1.38883	1.38865	1.38846	67.30
67.40	1.38828	1.38810	1.38792	1.38774	1.38756	1.38738	1.38719	1.38701	1.38683	1.38665	67.40
67.50	1.38647	1.38629	1.38611	1.38593	1.38575	1.38556	1.38538	1.38520	1.38502	1.38484	67.50
67.60	1.38466	1.38448	1.38430	1.38412	1.38394	1.38376	1.38358	1.38340	1.38322	1.38304	67.60
67.70	1.38286	1.38268	1.38250	1.38232	1.38214	1.38196	1.38178	1.38160	1.38142	1.38124	67.70
67.80	1.38106	1.38088	1.38070	1.38052	1.38035	1.38017	1.37999	1.37981	1.37963	1.37945	67.80
67.90	1.37927	1.37909	1.37891	1.37874	1.37856	1.37838	1.37820	1.37802	1.37784	1.37767	67.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
68.00	1.37749	1.37731	1.37713	1.37695	1.37677	1.37660	1.37642	1.37624	1.37606	1.37589	68.00
68.10	1.37571	1.37553	1.37535	1.37518	1.37500	1.37482	1.37464	1.37447	1.37429	1.37411	68.10
68.20	1.37393	1.37376	1.37358	1.37340	1.37323	1.37305	1.37287	1.37270	1.37252	1.37234	68.20
68.30	1.37217	1.37199	1.37181	1.37164	1.37146	1.37128	1.37111	1.37093	1.37076	1.37058	68.30
68.40	1.37040	1.37023	1.37005	1.36988	1.36970	1.36952	1.36935	1.36917	1.36900	1.36882	68.40
68.50	1.36865	1.36847	1.36830	1.36812	1.36795	1.36777	1.36760	1.36742	1.36724	1.36707	68.50
68.60	1.36690	1.36672	1.36655	1.36637	1.36620	1.36602	1.36585	1.36567	1.36550	1.36532	68.60
68.70	1.36515	1.36497	1.36480	1.36463	1.36445	1.36428	1.36410	1.36393	1.36376	1.36358	68.70
68.80	1.36341	1.36324	1.36306	1.36289	1.36271	1.36254	1.36237	1.36219	1.36202	1.36185	68.80
68.90	1.36167	1.36150	1.36133	1.36115	1.36098	1.36081	1.36064	1.36046	1.36029	1.36012	68.90
69.00	1.35994	1.35977	1.35960	1.35943	1.35925	1.35908	1.35891	1.35874	1.35856	1.35839	69.00
69.10	1.35822	1.35805	1.35788	1.35770	1.35753	1.35736	1.35719	1.35702	1.35684	1.35667	69.10
69.20	1.35650	1.35633	1.35616	1.35599	1.35582	1.35564	1.35547	1.35530	1.35513	1.35496	69.20
69.30	1.35479	1.35462	1.35445	1.35428	1.35410	1.35393	1.35376	1.35359	1.35342	1.35325	69.30
69.40	1.35308	1.35291	1.35274	1.35257	1.35240	1.35223	1.35206	1.35189	1.35172	1.35155	69.40
69.50	1.35138	1.35121	1.35104	1.35087	1.35070	1.35053	1.35036	1.35019	1.35002	1.34985	69.50
69.60	1.34968	1.34951	1.34934	1.34917	1.34900	1.34883	1.34866	1.34850	1.34833	1.34816	69.60
69.70	1.34799	1.34782	1.34765	1.34748	1.34731	1.34714	1.34698	1.34681	1.34664	1.34647	69.70
69.80	1.34630	1.34613	1.34597	1.34580	1.34563	1.34546	1.34529	1.34512	1.34496	1.34479	69.80
69.90	1.34462	1.34445	1.34428	1.34412	1.34395	1.34378	1.34361	1.34345	1.34328	1.34311	69.90
70.00	1.34294	1.34278	1.34261	1.34244	1.34227	1.34211	1.34194	1.34177	1.34161	1.34144	70.00
70.10	1.34127	1.34111	1.34094	1.34077	1.34061	1.34044	1.34027	1.34011	1.33994	1.33977	70.10
70.20	1.33961	1.33944	1.33927	1.33911	1.33894	1.33878	1.33861	1.33844	1.33828	1.33811	70.20
70.30	1.33795	1.33778	1.33761	1.33745	1.33728	1.33712	1.33695	1.33679	1.33662	1.33646	70.30
70.40	1.33629	1.33613	1.33596	1.33579	1.33563	1.33546	1.33530	1.33513	1.33497	1.33480	70.40
70.50	1.33464	1.33448	1.33431	1.33415	1.33398	1.33382	1.33365	1.33349	1.33332	1.33316	70.50
70.60	1.33299	1.33283	1.33267	1.33250	1.33234	1.33217	1.33201	1.33185	1.33168	1.33152	70.60
70.70	1.33135	1.33119	1.33103	1.33086	1.33070	1.33054	1.33037	1.33021	1.33005	1.32988	70.70
70.80	1.32972	1.32956	1.32939	1.32923	1.32907	1.32890	1.32874	1.32858	1.32841	1.32825	70.80
70.90	1.32809	1.32793	1.32776	1.32760	1.32744	1.32728	1.32711	1.32695	1.32679	1.32663	70.90
71.00	1.32646	1.32630	1.32614	1.32598	1.32581	1.32565	1.32549	1.32533	1.32517	1.32500	71.00
71.10	1.32484	1.32468	1.32452	1.32436	1.32420	1.32403	1.32387	1.32371	1.32355	1.32339	71.10
71.20	1.32323	1.32307	1.32290	1.32274	1.32258	1.32242	1.32226	1.32210	1.32194	1.32178	71.20
71.30	1.32162	1.32146	1.32130	1.32113	1.32097	1.32081	1.32065	1.32049	1.32033	1.32017	71.30
71.40	1.32001	1.31985	1.31969	1.31953	1.31937	1.31921	1.31905	1.31889	1.31873	1.31857	71.40
71.50	1.31841	1.31825	1.31809	1.31793	1.31777	1.31761	1.31745	1.31729	1.31713	1.31697	71.50
71.60	1.31681	1.31666	1.31650	1.31634	1.31618	1.31602	1.31586	1.31570	1.31554	1.31538	71.60
71.70	1.31522	1.31507	1.31491	1.31475	1.31459	1.31443	1.31427	1.31411	1.31395	1.31380	71.70
71.80	1.31364	1.31348	1.31332	1.31316	1.31300	1.31285	1.31269	1.31253	1.31237	1.31221	71.80
71.90	1.31206	1.31190	1.31174	1.31158	1.31143	1.31127	1.31111	1.31095	1.31080	1.31064	71.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
72.00	1.31048	1.31032	1.31017	1.31001	1.30985	1.30969	1.30954	1.30938	1.30922	1.30907	72.00
72.10	1.30891	1.30875	1.30859	1.30844	1.30828	1.30812	1.30797	1.30781	1.30765	1.30750	72.10
72.20	1.30734	1.30719	1.30703	1.30687	1.30672	1.30656	1.30640	1.30625	1.30609	1.30594	72.20
72.30	1.30578	1.30562	1.30547	1.30531	1.30516	1.30500	1.30484	1.30469	1.30453	1.30438	72.30
72.40	1.30422	1.30407	1.30391	1.30376	1.30360	1.30345	1.30329	1.30313	1.30298	1.30282	72.40
72.50	1.30267	1.30251	1.30236	1.30220	1.30205	1.30189	1.30174	1.30159	1.30143	1.30128	72.50
72.60	1.30112	1.30097	1.30081	1.30066	1.30050	1.30035	1.30019	1.30004	1.29989	1.29973	72.60
72.70	1.29958	1.29942	1.29927	1.29912	1.29896	1.29881	1.29865	1.29850	1.29835	1.29819	72.70
72.80	1.29804	1.29789	1.29773	1.29758	1.29743	1.29727	1.29712	1.29696	1.29681	1.29666	72.80
72.90	1.29651	1.29635	1.29620	1.29605	1.29589	1.29574	1.29559	1.29543	1.29528	1.29513	72.90
73.00	1.29498	1.29482	1.29467	1.29452	1.29437	1.29421	1.29406	1.29391	1.29376	1.29360	73.00
73.10	1.29345	1.29330	1.29315	1.29299	1.29284	1.29269	1.29254	1.29239	1.29223	1.29208	73.10
73.20	1.29193	1.29178	1.29163	1.29148	1.29132	1.29117	1.29102	1.29087	1.29072	1.29057	73.20
73.30	1.29041	1.29026	1.29011	1.28996	1.28981	1.28966	1.28951	1.28936	1.28921	1.28905	73.30
73.40	1.28890	1.28875	1.28860	1.28845	1.28830	1.28815	1.28800	1.28785	1.28770	1.28755	73.40
73.50	1.28740	1.28725	1.28710	1.28695	1.28680	1.28664	1.28649	1.28634	1.28619	1.28604	73.50
73.60	1.28589	1.28574	1.28559	1.28544	1.28529	1.28514	1.28500	1.28485	1.28470	1.28455	73.60
73.70	1.28440	1.28425	1.28410	1.28395	1.28380	1.28365	1.28350	1.28335	1.28320	1.28305	73.70
73.80	1.28290	1.28275	1.28261	1.28246	1.28231	1.28216	1.28201	1.28186	1.28171	1.28156	73.80
73.90	1.28141	1.28127	1.28112	1.28097	1.28082	1.28067	1.28052	1.28037	1.28023	1.28008	73.90
74.00	1.27993	1.27978	1.27963	1.27949	1.27934	1.27919	1.27904	1.27889	1.27875	1.27860	74.00
74.10	1.27845	1.27830	1.27815	1.27801	1.27786	1.27771	1.27756	1.27742	1.27727	1.27712	74.10
74.20	1.27697	1.27683	1.27668	1.27653	1.27639	1.27624	1.27609	1.27594	1.27580	1.27565	74.20
74.30	1.27550	1.27536	1.27521	1.27506	1.27492	1.27477	1.27462	1.27448	1.27433	1.27418	74.30
74.40	1.27404	1.27389	1.27374	1.27360	1.27345	1.27330	1.27316	1.27301	1.27287	1.27272	74.40
74.50	1.27257	1.27243	1.27228	1.27214	1.27199	1.27184	1.27170	1.27155	1.27141	1.27126	74.50
74.60	1.27112	1.27097	1.27082	1.27068	1.27053	1.27039	1.27024	1.27010	1.26995	1.26981	74.60
74.70	1.26966	1.26952	1.26937	1.26923	1.26908	1.26894	1.26879	1.26865	1.26850	1.26836	74.70
74.80	1.26821	1.26807	1.26792	1.26778	1.26763	1.26749	1.26734	1.26720	1.26705	1.26691	74.80
74.90	1.26677	1.26662	1.26648	1.26633	1.26619	1.26604	1.26590	1.26576	1.26561	1.26547	74.90
75.00	1.26532	1.26518	1.26504	1.26489	1.26475	1.26461	1.26446	1.26432	1.26418	1.26403	75.00
75.10	1.26389	1.26374	1.26360	1.26346	1.26331	1.26317	1.26303	1.26288	1.26274	1.26260	75.10
75.20	1.26246	1.26231	1.26217	1.26203	1.26188	1.26174	1.26160	1.26145	1.26131	1.26117	75.20
75.30	1.26103	1.26088	1.26074	1.26060	1.26046	1.26031	1.26017	1.26003	1.25989	1.25974	75.30
75.40	1.25960	1.25946	1.25932	1.25918	1.25903	1.25889	1.25875	1.25861	1.25847	1.25832	75.40
75.50	1.25818	1.25804	1.25790	1.25776	1.25762	1.25747	1.25733	1.25719	1.25705	1.25691	75.50
75.60	1.25677	1.25663	1.25648	1.25634	1.25620	1.25606	1.25592	1.25578	1.25564	1.25550	75.60
75.70	1.25535	1.25521	1.25507	1.25493	1.25479	1.25465	1.25451	1.25437	1.25423	1.25409	75.70
75.80	1.25395	1.25381	1.25367	1.25353	1.25338	1.25324	1.25310	1.25296	1.25282	1.25268	75.80
75.90	1.25254	1.25240	1.25226	1.25212	1.25198	1.25184	1.25170	1.25156	1.25142	1.25128	75.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
76.00	1.25114	1.25100	1.25086	1.25072	1.25059	1.25045	1.25031	1.25017	1.25003	1.24989	76.00
76.10	1.24975	1.24961	1.24947	1.24933	1.24919	1.24905	1.24891	1.24877	1.24863	1.24850	76.10
76.20	1.24836	1.24822	1.24808	1.24794	1.24780	1.24766	1.24752	1.24739	1.24725	1.24711	76.20
76.30	1.24697	1.24683	1.24669	1.24655	1.24642	1.24628	1.24614	1.24600	1.24586	1.24572	76.30
76.40	1.24559	1.24545	1.24531	1.24517	1.24503	1.24490	1.24476	1.24462	1.24448	1.24434	76.40
76.50	1.24421	1.24407	1.24393	1.24379	1.24366	1.24352	1.24338	1.24324	1.24311	1.24297	76.50
76.60	1.24283	1.24269	1.24256	1.24242	1.24228	1.24215	1.24201	1.24187	1.24173	1.24160	76.60
76.70	1.24146	1.24132	1.24119	1.24105	1.24091	1.24078	1.24064	1.24050	1.24037	1.24023	76.70
76.80	1.24009	1.23996	1.23982	1.23968	1.23955	1.23941	1.23927	1.23914	1.23900	1.23887	76.80
76.90	1.23873	1.23859	1.23846	1.23832	1.23819	1.23805	1.23791	1.23778	1.23764	1.23751	76.90
77.00	1.23737	1.23723	1.23710	1.23696	1.23683	1.23669	1.23656	1.23642	1.23629	1.23615	77.00
77.10	1.23601	1.23588	1.23574	1.23561	1.23547	1.23534	1.23520	1.23507	1.23493	1.23480	77.10
77.20	1.23466	1.23453	1.23439	1.23426	1.23412	1.23399	1.23385	1.23372	1.23358	1.23345	77.20
77.30	1.23332	1.23318	1.23305	1.23291	1.23278	1.23264	1.23251	1.23237	1.23224	1.23211	77.30
77.40	1.23197	1.23184	1.23170	1.23157	1.23143	1.23130	1.23117	1.23103	1.23090	1.23077	77.40
77.50	1.23063	1.23050	1.23036	1.23023	1.23010	1.22996	1.22983	1.22970	1.22956	1.22943	77.50
77.60	1.22930	1.22916	1.22903	1.22890	1.22876	1.22863	1.22850	1.22836	1.22823	1.22810	77.60
77.70	1.22796	1.22783	1.22770	1.22756	1.22743	1.22730	1.22717	1.22703	1.22690	1.22677	77.70
77.80	1.22663	1.22650	1.22637	1.22624	1.22610	1.22597	1.22584	1.22571	1.22557	1.22544	77.80
77.90	1.22531	1.22518	1.22505	1.22491	1.22478	1.22465	1.22452	1.22438	1.22425	1.22412	77.90
78.00	1.22399	1.22386	1.22372	1.22359	1.22346	1.22333	1.22320	1.22307	1.22293	1.22280	78.00
78.10	1.22267	1.22254	1.22241	1.22228	1.22215	1.22201	1.22188	1.22175	1.22162	1.22149	78.10
78.20	1.22136	1.22123	1.22110	1.22096	1.22083	1.22070	1.22057	1.22044	1.22031	1.22018	78.20
78.30	1.22005	1.21992	1.21979	1.21966	1.21953	1.21940	1.21926	1.21913	1.21900	1.21887	78.30
78.40	1.21874	1.21861	1.21848	1.21835	1.21822	1.21809	1.21796	1.21783	1.21770	1.21757	78.40
78.50	1.21744	1.21731	1.21718	1.21705	1.21692	1.21679	1.21666	1.21653	1.21640	1.21627	78.50
78.60	1.21614	1.21601	1.21588	1.21575	1.21562	1.21549	1.21536	1.21524	1.21511	1.21498	78.60
78.70	1.21485	1.21472	1.21459	1.21446	1.21433	1.21420	1.21407	1.21394	1.21381	1.21368	78.70
78.80	1.21356	1.21343	1.21330	1.21317	1.21304	1.21291	1.21278	1.21265	1.21253	1.21240	78.80
78.90	1.21227	1.21214	1.21201	1.21188	1.21175	1.21163	1.21150	1.21137	1.21124	1.21111	78.90
79.00	1.21098	1.21086	1.21073	1.21060	1.21047	1.21034	1.21022	1.21009	1.20996	1.20983	79.00
79.10	1.20970	1.20958	1.20945	1.20932	1.20919	1.20907	1.20894	1.20881	1.20868	1.20856	79.10
79.20	1.20843	1.20830	1.20817	1.20805	1.20792	1.20779	1.20766	1.20754	1.20741	1.20728	79.20
79.30	1.20716	1.20703	1.20690	1.20677	1.20665	1.20652	1.20639	1.20627	1.20614	1.20601	79.30
79.40	1.20589	1.20576	1.20563	1.20551	1.20538	1.20525	1.20513	1.20500	1.20487	1.20475	79.40
79.50	1.20462	1.20449	1.20437	1.20424	1.20411	1.20399	1.20386	1.20374	1.20361	1.20348	79.50
79.60	1.20336	1.20323	1.20311	1.20298	1.20285	1.20273	1.20260	1.20248	1.20235	1.20222	79.60
79.70	1.20210	1.20197	1.20185	1.20172	1.20160	1.20147	1.20135	1.20122	1.20109	1.20097	79.70
79.80	1.20084	1.20072	1.20059	1.20047	1.20034	1.20022	1.20009	1.19997	1.19984	1.19972	79.80
79.90	1.19959	1.19947	1.19934	1.19922	1.19909	1.19897	1.19884	1.19872	1.19859	1.19847	79.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
80.00	1.19834	1.19822	1.19810	1.19797	1.19785	1.19772	1.19760	1.19747	1.19735	1.19722	80.00
80.10	1.19710	1.19698	1.19685	1.19673	1.19660	1.19648	1.19635	1.19623	1.19611	1.19598	80.10
80.20	1.19586	1.19574	1.19561	1.19549	1.19536	1.19524	1.19512	1.19499	1.19487	1.19474	80.20
80.30	1.19462	1.19450	1.19437	1.19425	1.19413	1.19400	1.19388	1.19376	1.19363	1.19351	80.30
80.40	1.19339	1.19326	1.19314	1.19302	1.19289	1.19277	1.19265	1.19253	1.19240	1.19228	80.40
80.50	1.19216	1.19203	1.19191	1.19179	1.19167	1.19154	1.19142	1.19130	1.19117	1.19105	80.50
80.60	1.19093	1.19081	1.19068	1.19056	1.19044	1.19032	1.19019	1.19007	1.18995	1.18983	80.60
80.70	1.18971	1.18958	1.18946	1.18934	1.18922	1.18910	1.18897	1.18885	1.18873	1.18861	80.70
80.80	1.18849	1.18836	1.18824	1.18812	1.18800	1.18788	1.18775	1.18763	1.18751	1.18739	80.80
80.90	1.18727	1.18715	1.18703	1.18690	1.18678	1.18666	1.18654	1.18642	1.18630	1.18618	80.90
81.00	1.18605	1.18593	1.18581	1.18569	1.18557	1.18545	1.18533	1.18521	1.18509	1.18497	81.00
81.10	1.18484	1.18472	1.18460	1.18448	1.18436	1.18424	1.18412	1.18400	1.18388	1.18376	81.10
81.20	1.18364	1.18352	1.18340	1.18328	1.18316	1.18304	1.18292	1.18280	1.18267	1.18255	81.20
81.30	1.18243	1.18231	1.18219	1.18207	1.18195	1.18183	1.18171	1.18159	1.18147	1.18135	81.30
81.40	1.18123	1.18111	1.18099	1.18087	1.18076	1.18064	1.18052	1.18040	1.18028	1.18016	81.40
81.50	1.18004	1.17992	1.17980	1.17968	1.17956	1.17944	1.17932	1.17920	1.17908	1.17896	81.50
81.60	1.17884	1.17872	1.17861	1.17849	1.17837	1.17825	1.17813	1.17801	1.17789	1.17777	81.60
81.70	1.17765	1.17754	1.17742	1.17730	1.17718	1.17706	1.17694	1.17682	1.17670	1.17659	81.70
81.80	1.17647	1.17635	1.17623	1.17611	1.17599	1.17587	1.17576	1.17564	1.17552	1.17540	81.80
81.90	1.17528	1.17517	1.17505	1.17493	1.17481	1.17469	1.17457	1.17446	1.17434	1.17422	81.90
82.00	1.17410	1.17399	1.17387	1.17375	1.17363	1.17351	1.17340	1.17328	1.17316	1.17304	82.00
82.10	1.17293	1.17281	1.17269	1.17257	1.17246	1.17234	1.17222	1.17210	1.17199	1.17187	82.10
82.20	1.17175	1.17164	1.17152	1.17140	1.17128	1.17117	1.17105	1.17093	1.17082	1.17070	82.20
82.30	1.17058	1.17046	1.17035	1.17023	1.17011	1.17000	1.16988	1.16976	1.16965	1.16953	82.30
82.40	1.16941	1.16930	1.16918	1.16906	1.16895	1.16883	1.16872	1.16860	1.16848	1.16837	82.40
82.50	1.16825	1.16813	1.16802	1.16790	1.16779	1.16767	1.16755	1.16744	1.16732	1.16721	82.50
82.60	1.16709	1.16697	1.16686	1.16674	1.16663	1.16651	1.16639	1.16628	1.16616	1.16605	82.60
82.70	1.16593	1.16582	1.16570	1.16559	1.16547	1.16535	1.16524	1.16512	1.16501	1.16489	82.70
82.80	1.16478	1.16466	1.16455	1.16443	1.16432	1.16420	1.16409	1.16397	1.16386	1.16374	82.80
82.90	1.16363	1.16351	1.16340	1.16328	1.16317	1.16305	1.16294	1.16282	1.16271	1.16259	82.90
83.00	1.16248	1.16236	1.16225	1.16213	1.16202	1.16190	1.16179	1.16168	1.16156	1.16145	83.00
83.10	1.16133	1.16122	1.16110	1.16099	1.16088	1.16076	1.16065	1.16053	1.16042	1.16030	83.10
83.20	1.16019	1.16008	1.15996	1.15985	1.15973	1.15962	1.15951	1.15939	1.15928	1.15917	83.20
83.30	1.15905	1.15894	1.15882	1.15871	1.15860	1.15848	1.15837	1.15826	1.15814	1.15803	83.30
83.40	1.15792	1.15780	1.15769	1.15758	1.15746	1.15735	1.15724	1.15712	1.15701	1.15690	83.40
83.50	1.15678	1.15667	1.15656	1.15644	1.15633	1.15622	1.15611	1.15599	1.15588	1.15577	83.50
83.60	1.15565	1.15554	1.15543	1.15532	1.15520	1.15509	1.15498	1.15487	1.15475	1.15464	83.60
83.70	1.15453	1.15442	1.15430	1.15419	1.15408	1.15397	1.15385	1.15374	1.15363	1.15352	83.70
83.80	1.15340	1.15329	1.15318	1.15307	1.15296	1.15284	1.15273	1.15262	1.15251	1.15240	83.80
83.90	1.15228	1.15217	1.15206	1.15195	1.15184	1.15173	1.15161	1.15150	1.15139	1.15128	83.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
84.00	1.15117	1.15106	1.15094	1.15083	1.15072	1.15061	1.15050	1.15039	1.15028	1.15016	84.00
84.10	1.15005	1.14994	1.14983	1.14972	1.14961	1.14950	1.14939	1.14927	1.14916	1.14905	84.10
84.20	1.14894	1.14883	1.14872	1.14861	1.14850	1.14839	1.14828	1.14817	1.14805	1.14794	84.20
84.30	1.14783	1.14772	1.14761	1.14750	1.14739	1.14728	1.14717	1.14706	1.14695	1.14684	84.30
84.40	1.14673	1.14662	1.14651	1.14640	1.14629	1.14618	1.14607	1.14596	1.14585	1.14574	84.40
84.50	1.14563	1.14552	1.14541	1.14530	1.14519	1.14508	1.14497	1.14486	1.14475	1.14464	84.50
84.60	1.14453	1.14442	1.14431	1.14420	1.14409	1.14398	1.14387	1.14376	1.14365	1.14354	84.60
84.70	1.14343	1.14332	1.14321	1.14310	1.14299	1.14288	1.14277	1.14267	1.14256	1.14245	84.70
84.80	1.14234	1.14223	1.14212	1.14201	1.14190	1.14179	1.14168	1.14157	1.14147	1.14136	84.80
84.90	1.14125	1.14114	1.14103	1.14092	1.14081	1.14070	1.14059	1.14049	1.14038	1.14027	84.90
85.00	1.14016	1.14005	1.13994	1.13983	1.13973	1.13962	1.13951	1.13940	1.13929	1.13918	85.00
85.10	1.13908	1.13897	1.13886	1.13875	1.13864	1.13853	1.13843	1.13832	1.13821	1.13810	85.10
85.20	1.13799	1.13789	1.13778	1.13767	1.13756	1.13745	1.13735	1.13724	1.13713	1.13702	85.20
85.30	1.13692	1.13681	1.13670	1.13659	1.13649	1.13638	1.13627	1.13616	1.13606	1.13595	85.30
85.40	1.13584	1.13573	1.13563	1.13552	1.13541	1.13530	1.13520	1.13509	1.13498	1.13487	85.40
85.50	1.13477	1.13466	1.13455	1.13445	1.13434	1.13423	1.13413	1.13402	1.13391	1.13380	85.50
85.60	1.13370	1.13359	1.13348	1.13338	1.13327	1.13316	1.13306	1.13295	1.13284	1.13274	85.60
85.70	1.13263	1.13252	1.13242	1.13231	1.13220	1.13210	1.13199	1.13189	1.13178	1.13167	85.70
85.80	1.13157	1.13146	1.13135	1.13125	1.13114	1.13104	1.13093	1.13082	1.13072	1.13061	85.80
85.90	1.13051	1.13040	1.13029	1.13019	1.13008	1.12998	1.12987	1.12976	1.12966	1.12955	85.90
86.00	1.12945	1.12934	1.12924	1.12913	1.12902	1.12892	1.12881	1.12871	1.12860	1.12850	86.00
86.10	1.12839	1.12829	1.12818	1.12808	1.12797	1.12786	1.12776	1.12765	1.12755	1.12744	86.10
86.20	1.12734	1.12723	1.12713	1.12702	1.12692	1.12681	1.12671	1.12660	1.12650	1.12639	86.20
86.30	1.12629	1.12618	1.12608	1.12597	1.12587	1.12576	1.12566	1.12556	1.12545	1.12535	86.30
86.40	1.12524	1.12514	1.12503	1.12493	1.12482	1.12472	1.12461	1.12451	1.12441	1.12430	86.40
86.50	1.12420	1.12409	1.12399	1.12388	1.12378	1.12368	1.12357	1.12347	1.12336	1.12326	86.50
86.60	1.12316	1.12305	1.12295	1.12284	1.12274	1.12264	1.12253	1.12243	1.12232	1.12222	86.60
86.70	1.12212	1.12201	1.12191	1.12181	1.12170	1.12160	1.12150	1.12139	1.12129	1.12118	86.70
86.80	1.12108	1.12098	1.12087	1.12077	1.12067	1.12056	1.12046	1.12036	1.12025	1.12015	86.80
86.90	1.12005	1.11995	1.11984	1.11974	1.11964	1.11953	1.11943	1.11933	1.11922	1.11912	86.90
87.00	1.11902	1.11891	1.11881	1.11871	1.11861	1.11850	1.11840	1.11830	1.11820	1.11809	87.00
87.10	1.11799	1.11789	1.11778	1.11768	1.11758	1.11748	1.11737	1.11727	1.11717	1.11707	87.10
87.20	1.11697	1.11686	1.11676	1.11666	1.11656	1.11645	1.11635	1.11625	1.11615	1.11605	87.20
87.30	1.11594	1.11584	1.11574	1.11564	1.11553	1.11543	1.11533	1.11523	1.11513	1.11503	87.30
87.40	1.11492	1.11482	1.11472	1.11462	1.11452	1.11441	1.11431	1.11421	1.11411	1.11401	87.40
87.50	1.11391	1.11381	1.11370	1.11360	1.11350	1.11340	1.11330	1.11320	1.11310	1.11299	87.50
87.60	1.11289	1.11279	1.11269	1.11259	1.11249	1.11239	1.11229	1.11218	1.11208	1.11198	87.60
87.70	1.11188	1.11178	1.11168	1.11158	1.11148	1.11138	1.11128	1.11117	1.11107	1.11097	87.70
87.80	1.11087	1.11077	1.11067	1.11057	1.11047	1.11037	1.11027	1.11017	1.11007	1.10997	87.80
87.90	1.10987	1.10977	1.10967	1.10957	1.10946	1.10936	1.10926	1.10916	1.10906	1.10896	87.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
88.00	1.10886	1.10876	1.10866	1.10856	1.10846	1.10836	1.10826	1.10816	1.10806	1.10796	88.00
88.10	1.10786	1.10776	1.10766	1.10756	1.10746	1.10736	1.10726	1.10716	1.10706	1.10696	88.10
88.20	1.10686	1.10676	1.10666	1.10657	1.10647	1.10637	1.10627	1.10617	1.10607	1.10597	88.20
88.30	1.10587	1.10577	1.10567	1.10557	1.10547	1.10537	1.10527	1.10517	1.10507	1.10498	88.30
88.40	1.10488	1.10478	1.10468	1.10458	1.10448	1.10438	1.10428	1.10418	1.10408	1.10398	88.40
88.50	1.10389	1.10379	1.10369	1.10359	1.10349	1.10339	1.10329	1.10319	1.10310	1.10300	88.50
88.60	1.10290	1.10280	1.10270	1.10260	1.10250	1.10241	1.10231	1.10221	1.10211	1.10201	88.60
88.70	1.10191	1.10181	1.10172	1.10162	1.10152	1.10142	1.10132	1.10123	1.10113	1.10103	88.70
88.80	1.10093	1.10083	1.10073	1.10064	1.10054	1.10044	1.10034	1.10024	1.10015	1.10005	88.80
88.90	1.09995	1.09985	1.09976	1.09966	1.09956	1.09946	1.09936	1.09927	1.09917	1.09907	88.90
89.00	1.09897	1.09888	1.09878	1.09868	1.09858	1.09849	1.09839	1.09829	1.09819	1.09810	89.00
89.10	1.09800	1.09790	1.09780	1.09771	1.09761	1.09751	1.09742	1.09732	1.09722	1.09712	89.10
89.20	1.09703	1.09693	1.09683	1.09674	1.09664	1.09654	1.09645	1.09635	1.09625	1.09615	89.20
89.30	1.09606	1.09596	1.09586	1.09577	1.09567	1.09557	1.09548	1.09538	1.09528	1.09519	89.30
89.40	1.09509	1.09499	1.09490	1.09480	1.09470	1.09461	1.09451	1.09442	1.09432	1.09422	89.40
89.50	1.09413	1.09403	1.09393	1.09384	1.09374	1.09364	1.09355	1.09345	1.09336	1.09326	89.50
89.60	1.09316	1.09307	1.09297	1.09288	1.09278	1.09268	1.09259	1.09249	1.09240	1.09230	89.60
89.70	1.09220	1.09211	1.09201	1.09192	1.09182	1.09173	1.09163	1.09153	1.09144	1.09134	89.70
89.80	1.09125	1.09115	1.09106	1.09096	1.09087	1.09077	1.09068	1.09058	1.09048	1.09039	89.80
89.90	1.09029	1.09020	1.09010	1.09001	1.08991	1.08982	1.08972	1.08963	1.08953	1.08944	89.90
90.00	1.08934	1.08925	1.08915	1.08906	1.08896	1.08887	1.08877	1.08868	1.08858	1.08849	90.00
90.10	1.08839	1.08830	1.08820	1.08811	1.08801	1.08792	1.08782	1.08773	1.08763	1.08754	90.10
90.20	1.08745	1.08735	1.08726	1.08716	1.08707	1.08697	1.08688	1.08678	1.08669	1.08660	90.20
90.30	1.08650	1.08641	1.08631	1.08622	1.08612	1.08603	1.08594	1.08584	1.08575	1.08565	90.30
90.40	1.08556	1.08547	1.08537	1.08528	1.08518	1.08509	1.08500	1.08490	1.08481	1.08471	90.40
90.50	1.08462	1.08453	1.08443	1.08434	1.08424	1.08415	1.08406	1.08396	1.08387	1.08378	90.50
90.60	1.08368	1.08359	1.08350	1.08340	1.08331	1.08321	1.08312	1.08303	1.08293	1.08284	90.60
90.70	1.08275	1.08265	1.08256	1.08247	1.08237	1.08228	1.08219	1.08210	1.08200	1.08191	90.70
90.80	1.08182	1.08172	1.08163	1.08154	1.08144	1.08135	1.08126	1.08116	1.08107	1.08098	90.80
90.90	1.08089	1.08079	1.08070	1.08061	1.08051	1.08042	1.08033	1.08024	1.08014	1.08005	90.90
91.00	1.07996	1.07987	1.07977	1.07968	1.07959	1.07950	1.07940	1.07931	1.07922	1.07913	91.00
91.10	1.07903	1.07894	1.07885	1.07876	1.07866	1.07857	1.07848	1.07839	1.07830	1.07820	91.10
91.20	1.07811	1.07802	1.07793	1.07783	1.07774	1.07765	1.07756	1.07747	1.07737	1.07728	91.20
91.30	1.07719	1.07710	1.07701	1.07692	1.07682	1.07673	1.07664	1.07655	1.07646	1.07636	91.30
91.40	1.07627	1.07618	1.07609	1.07600	1.07591	1.07582	1.07572	1.07563	1.07554	1.07545	91.40
91.50	1.07536	1.07527	1.07518	1.07508	1.07499	1.07490	1.07481	1.07472	1.07463	1.07454	91.50
91.60	1.07444	1.07435	1.07426	1.07417	1.07408	1.07399	1.07390	1.07381	1.07372	1.07363	91.60
91.70	1.07353	1.07344	1.07335	1.07326	1.07317	1.07308	1.07299	1.07290	1.07281	1.07272	91.70
91.80	1.07263	1.07254	1.07244	1.07235	1.07226	1.07217	1.07208	1.07199	1.07190	1.07181	91.80
91.90	1.07172	1.07163	1.07154	1.07145	1.07136	1.07127	1.07118	1.07109	1.07100	1.07091	91.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
92.00	1.07082	1.07073	1.07064	1.07055	1.07046	1.07037	1.07028	1.07019	1.07010	1.07001	92.00
92.10	1.06992	1.06983	1.06974	1.06965	1.06956	1.06947	1.06938	1.06929	1.06920	1.06911	92.10
92.20	1.06902	1.06893	1.06884	1.06875	1.06866	1.06857	1.06848	1.06839	1.06830	1.06821	92.20
92.30	1.06812	1.06803	1.06794	1.06785	1.06776	1.06767	1.06758	1.06749	1.06740	1.06731	92.30
92.40	1.06723	1.06714	1.06705	1.06696	1.06687	1.06678	1.06669	1.06660	1.06651	1.06642	92.40
92.50	1.06633	1.06624	1.06616	1.06607	1.06598	1.06589	1.06580	1.06571	1.06562	1.06553	92.50
92.60	1.06544	1.06536	1.06527	1.06518	1.06509	1.06500	1.06491	1.06482	1.06473	1.06465	92.60
92.70	1.06456	1.06447	1.06438	1.06429	1.06420	1.06411	1.06403	1.06394	1.06385	1.06376	92.70
92.80	1.06367	1.06358	1.06349	1.06341	1.06332	1.06323	1.06314	1.06305	1.06297	1.06288	92.80
92.90	1.06279	1.06270	1.06261	1.06252	1.06244	1.06235	1.06226	1.06217	1.06208	1.06200	92.90
93.00	1.06191	1.06182	1.06173	1.06164	1.06156	1.06147	1.06138	1.06129	1.06121	1.06112	93.00
93.10	1.06103	1.06094	1.06085	1.06077	1.06068	1.06059	1.06050	1.06042	1.06033	1.06024	93.10
93.20	1.06015	1.06007	1.05998	1.05989	1.05980	1.05972	1.05963	1.05954	1.05945	1.05937	93.20
93.30	1.05928	1.05919	1.05911	1.05902	1.05893	1.05884	1.05876	1.05867	1.05858	1.05850	93.30
93.40	1.05841	1.05832	1.05823	1.05815	1.05806	1.05797	1.05789	1.05780	1.05771	1.05763	93.40
93.50	1.05754	1.05745	1.05737	1.05728	1.05719	1.05711	1.05702	1.05693	1.05685	1.05676	93.50
93.60	1.05667	1.05659	1.05650	1.05641	1.05633	1.05624	1.05615	1.05607	1.05598	1.05589	93.60
93.70	1.05581	1.05572	1.05563	1.05555	1.05546	1.05538	1.05529	1.05520	1.05512	1.05503	93.70
93.80	1.05494	1.05486	1.05477	1.05469	1.05460	1.05451	1.05443	1.05434	1.05426	1.05417	93.80
93.90	1.05408	1.05400	1.05391	1.05383	1.05374	1.05366	1.05357	1.05348	1.05340	1.05331	93.90
94.00	1.05323	1.05314	1.05305	1.05297	1.05288	1.05280	1.05271	1.05263	1.05254	1.05246	94.00
94.10	1.05237	1.05228	1.05220	1.05211	1.05203	1.05194	1.05186	1.05177	1.05169	1.05160	94.10
94.20	1.05152	1.05143	1.05135	1.05126	1.05118	1.05109	1.05101	1.05092	1.05084	1.05075	94.20
94.30	1.05066	1.05058	1.05049	1.05041	1.05032	1.05024	1.05016	1.05007	1.04999	1.04990	94.30
94.40	1.04982	1.04973	1.04965	1.04956	1.04948	1.04939	1.04931	1.04922	1.04914	1.04905	94.40
94.50	1.04897	1.04888	1.04880	1.04871	1.04863	1.04855	1.04846	1.04838	1.04829	1.04821	94.50
94.60	1.04812	1.04804	1.04795	1.04787	1.04779	1.04770	1.04762	1.04753	1.04745	1.04736	94.60
94.70	1.04728	1.04720	1.04711	1.04703	1.04694	1.04686	1.04678	1.04669	1.04661	1.04652	94.70
94.80	1.04644	1.04636	1.04627	1.04619	1.04610	1.04602	1.04594	1.04585	1.04577	1.04568	94.80
94.90	1.04560	1.04552	1.04543	1.04535	1.04527	1.04518	1.04510	1.04501	1.04493	1.04485	94.90
95.00	1.04476	1.04468	1.04460	1.04451	1.04443	1.04435	1.04426	1.04418	1.04410	1.04401	95.00
95.10	1.04393	1.04385	1.04376	1.04368	1.04360	1.04351	1.04343	1.04335	1.04326	1.04318	95.10
95.20	1.04310	1.04301	1.04293	1.04285	1.04277	1.04268	1.04260	1.04252	1.04243	1.04235	95.20
95.30	1.04227	1.04218	1.04210	1.04202	1.04194	1.04185	1.04177	1.04169	1.04160	1.04152	95.30
95.40	1.04144	1.04136	1.04127	1.04119	1.04111	1.04103	1.04094	1.04086	1.04078	1.04070	95.40
95.50	1.04061	1.04053	1.04045	1.04037	1.04028	1.04020	1.04012	1.04004	1.03995	1.03987	95.50
95.60	1.03979	1.03971	1.03963	1.03954	1.03946	1.03938	1.03930	1.03921	1.03913	1.03905	95.60
95.70	1.03897	1.03889	1.03880	1.03872	1.03864	1.03856	1.03848	1.03839	1.03831	1.03823	95.70
95.80	1.03815	1.03807	1.03798	1.03790	1.03782	1.03774	1.03766	1.03758	1.03749	1.03741	95.80
95.90	1.03733	1.03725	1.03717	1.03709	1.03700	1.03692	1.03684	1.03676	1.03668	1.03660	95.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
96.00	1.03652	1.03643	1.03635	1.03627	1.03619	1.03611	1.03603	1.03595	1.03586	1.03578	96.00
96.10	1.03570	1.03562	1.03554	1.03546	1.03538	1.03530	1.03521	1.03513	1.03505	1.03497	96.10
96.20	1.03489	1.03481	1.03473	1.03465	1.03457	1.03449	1.03440	1.03432	1.03424	1.03416	96.20
96.30	1.03408	1.03400	1.03392	1.03384	1.03376	1.03368	1.03360	1.03352	1.03344	1.03335	96.30
96.40	1.03327	1.03319	1.03311	1.03303	1.03295	1.03287	1.03279	1.03271	1.03263	1.03255	96.40
96.50	1.03247	1.03239	1.03231	1.03223	1.03215	1.03207	1.03199	1.03191	1.03183	1.03175	96.50
96.60	1.03167	1.03159	1.03151	1.03143	1.03135	1.03126	1.03118	1.03110	1.03102	1.03094	96.60
96.70	1.03086	1.03078	1.03070	1.03062	1.03054	1.03046	1.03038	1.03030	1.03023	1.03015	96.70
96.80	1.03007	1.02999	1.02991	1.02983	1.02975	1.02967	1.02959	1.02951	1.02943	1.02935	96.80
96.90	1.02927	1.02919	1.02911	1.02903	1.02895	1.02887	1.02879	1.02871	1.02863	1.02855	96.90
97.00	1.02847	1.02839	1.02831	1.02824	1.02816	1.02808	1.02800	1.02792	1.02784	1.02776	97.00
97.10	1.02768	1.02760	1.02752	1.02744	1.02736	1.02728	1.02721	1.02713	1.02705	1.02697	97.10
97.20	1.02689	1.02681	1.02673	1.02665	1.02657	1.02649	1.02642	1.02634	1.02626	1.02618	97.20
97.30	1.02610	1.02602	1.02594	1.02586	1.02579	1.02571	1.02563	1.02555	1.02547	1.02539	97.30
97.40	1.02531	1.02523	1.02516	1.02508	1.02500	1.02492	1.02484	1.02476	1.02468	1.02461	97.40
97.50	1.02453	1.02445	1.02437	1.02429	1.02421	1.02414	1.02406	1.02398	1.02390	1.02382	97.50
97.60	1.02374	1.02367	1.02359	1.02351	1.02343	1.02335	1.02328	1.02320	1.02312	1.02304	97.60
97.70	1.02296	1.02289	1.02281	1.02273	1.02265	1.02257	1.02250	1.02242	1.02234	1.02226	97.70
97.80	1.02218	1.02211	1.02203	1.02195	1.02187	1.02180	1.02172	1.02164	1.02156	1.02149	97.80
97.90	1.02141	1.02133	1.02125	1.02117	1.02110	1.02102	1.02094	1.02086	1.02079	1.02071	97.90
98.00	1.02063	1.02055	1.02048	1.02040	1.02032	1.02025	1.02017	1.02009	1.02001	1.01994	98.00
98.10	1.01986	1.01978	1.01970	1.01963	1.01955	1.01947	1.01940	1.01932	1.01924	1.01916	98.10
98.20	1.01909	1.01901	1.01893	1.01886	1.01878	1.01870	1.01863	1.01855	1.01847	1.01840	98.20
98.30	1.01832	1.01824	1.01816	1.01809	1.01801	1.01793	1.01786	1.01778	1.01770	1.01763	98.30
98.40	1.01755	1.01747	1.01740	1.01732	1.01724	1.01717	1.01709	1.01701	1.01694	1.01686	98.40
98.50	1.01679	1.01671	1.01663	1.01656	1.01648	1.01640	1.01633	1.01625	1.01617	1.01610	98.50
98.60	1.01602	1.01595	1.01587	1.01579	1.01572	1.01564	1.01556	1.01549	1.01541	1.01534	98.60
98.70	1.01526	1.01518	1.01511	1.01503	1.01496	1.01488	1.01480	1.01473	1.01465	1.01458	98.70
98.80	1.01450	1.01442	1.01435	1.01427	1.01420	1.01412	1.01405	1.01397	1.01389	1.01382	98.80
98.90	1.01374	1.01367	1.01359	1.01352	1.01344	1.01336	1.01329	1.01321	1.01314	1.01306	98.90
99.00	1.01299	1.01291	1.01284	1.01276	1.01268	1.01261	1.01253	1.01246	1.01238	1.01231	99.00
99.10	1.01223	1.01216	1.01208	1.01201	1.01193	1.01186	1.01178	1.01171	1.01163	1.01156	99.10
99.20	1.01148	1.01141	1.01133	1.01126	1.01118	1.01110	1.01103	1.01095	1.01088	1.01080	99.20
99.30	1.01073	1.01066	1.01058	1.01051	1.01043	1.01036	1.01028	1.01021	1.01013	1.01006	99.30
99.40	1.00998	1.00991	1.00983	1.00976	1.00968	1.00961	1.00953	1.00946	1.00938	1.00931	99.40
99.50	1.00924	1.00916	1.00909	1.00901	1.00894	1.00886	1.00879	1.00871	1.00864	1.00856	99.50
99.60	1.00849	1.00842	1.00834	1.00827	1.00819	1.00812	1.00804	1.00797	1.00790	1.00782	99.60
99.70	1.00775	1.00767	1.00760	1.00753	1.00745	1.00738	1.00730	1.00723	1.00715	1.00708	99.70
99.80	1.00701	1.00693	1.00686	1.00678	1.00671	1.00664	1.00656	1.00649	1.00642	1.00634	99.80
99.90	1.00627	1.00619	1.00612	1.00605	1.00597	1.00590	1.00583	1.00575	1.00568	1.00560	99.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
100.00	1.00553	1.00546	1.00538	1.00531	1.00524	1.00516	1.00509	1.00502	1.00494	1.00487	100.00
100.10	1.00480	1.00472	1.00465	1.00457	1.00450	1.00443	1.00435	1.00428	1.00421	1.00413	100.10
100.20	1.00406	1.00399	1.00392	1.00384	1.00377	1.00370	1.00362	1.00355	1.00348	1.00340	100.20
100.30	1.00333	1.00326	1.00318	1.00311	1.00304	1.00296	1.00289	1.00282	1.00275	1.00267	100.30
100.40	1.00260	1.00253	1.00245	1.00238	1.00231	1.00224	1.00216	1.00209	1.00202	1.00194	100.40
100.50	1.00187	1.00180	1.00173	1.00165	1.00158	1.00151	1.00144	1.00136	1.00129	1.00122	100.50
100.60	1.00115	1.00107	1.00100	1.00093	1.00086	1.00078	1.00071	1.00064	1.00057	1.00049	100.60
100.70	1.00042	1.00035	1.00028	1.00020	1.00013	1.00006	0.99999	0.99992	0.99984	0.99977	100.70
100.80	0.99970	0.99963	0.99955	0.99948	0.99941	0.99934	0.99927	0.99919	0.99912	0.99905	100.80
100.90	0.99898	0.99891	0.99883	0.99876	0.99869	0.99862	0.99855	0.99847	0.99840	0.99833	100.90
101.00	0.99826	0.99819	0.99812	0.99804	0.99797	0.99790	0.99783	0.99776	0.99768	0.99761	101.00
101.10	0.99754	0.99747	0.99740	0.99733	0.99726	0.99718	0.99711	0.99704	0.99697	0.99690	101.10
101.20	0.99683	0.99675	0.99668	0.99661	0.99654	0.99647	0.99640	0.99633	0.99626	0.99618	101.20
101.30	0.99611	0.99604	0.99597	0.99590	0.99583	0.99576	0.99569	0.99561	0.99554	0.99547	101.30
101.40	0.99540	0.99533	0.99526	0.99519	0.99512	0.99505	0.99497	0.99490	0.99483	0.99476	101.40
101.50	0.99469	0.99462	0.99455	0.99448	0.99441	0.99434	0.99427	0.99419	0.99412	0.99405	101.50
101.60	0.99398	0.99391	0.99384	0.99377	0.99370	0.99363	0.99356	0.99349	0.99342	0.99335	101.60
101.70	0.99328	0.99321	0.99313	0.99306	0.99299	0.99292	0.99285	0.99278	0.99271	0.99264	101.70
101.80	0.99257	0.99250	0.99243	0.99236	0.99229	0.99222	0.99215	0.99208	0.99201	0.99194	101.80
101.90	0.99187	0.99180	0.99173	0.99166	0.99159	0.99152	0.99145	0.99138	0.99131	0.99124	101.90
102.00	0.99117	0.99110	0.99103	0.99096	0.99089	0.99082	0.99075	0.99068	0.99061	0.99054	102.00
102.10	0.99047	0.99040	0.99033	0.99026	0.99019	0.99012	0.99005	0.98998	0.98991	0.98984	102.10
102.20	0.98977	0.98970	0.98963	0.98956	0.98949	0.98942	0.98935	0.98928	0.98921	0.98914	102.20
102.30	0.98907	0.98900	0.98893	0.98886	0.98880	0.98873	0.98866	0.98859	0.98852	0.98845	102.30
102.40	0.98838	0.98831	0.98824	0.98817	0.98810	0.98803	0.98796	0.98789	0.98782	0.98776	102.40
102.50	0.98769	0.98762	0.98755	0.98748	0.98741	0.98734	0.98727	0.98720	0.98713	0.98706	102.50
102.60	0.98700	0.98693	0.98686	0.98679	0.98672	0.98665	0.98658	0.98651	0.98644	0.98637	102.60
102.70	0.98631	0.98624	0.98617	0.98610	0.98603	0.98596	0.98589	0.98582	0.98576	0.98569	102.70
102.80	0.98562	0.98555	0.98548	0.98541	0.98534	0.98528	0.98521	0.98514	0.98507	0.98500	102.80
102.90	0.98493	0.98486	0.98480	0.98473	0.98466	0.98459	0.98452	0.98445	0.98439	0.98432	102.90
103.00	0.98425	0.98418	0.98411	0.98404	0.98398	0.98391	0.98384	0.98377	0.98370	0.98363	103.00
103.10	0.98357	0.98350	0.98343	0.98336	0.98329	0.98323	0.98316	0.98309	0.98302	0.98295	103.10
103.20	0.98289	0.98282	0.98275	0.98268	0.98261	0.98255	0.98248	0.98241	0.98234	0.98227	103.20
103.30	0.98221	0.98214	0.98207	0.98200	0.98194	0.98187	0.98180	0.98173	0.98166	0.98160	103.30
103.40	0.98153	0.98146	0.98139	0.98133	0.98126	0.98119	0.98112	0.98106	0.98099	0.98092	103.40
103.50	0.98085	0.98079	0.98072	0.98065	0.98058	0.98052	0.98045	0.98038	0.98031	0.98025	103.50
103.60	0.98018	0.98011	0.98005	0.97998	0.97991	0.97984	0.97978	0.97971	0.97964	0.97957	103.60
103.70	0.97951	0.97944	0.97937	0.97931	0.97924	0.97917	0.97910	0.97904	0.97897	0.97890	103.70
103.80	0.97884	0.97877	0.97870	0.97864	0.97857	0.97850	0.97844	0.97837	0.97830	0.97823	103.80
103.90	0.97817	0.97810	0.97803	0.97797	0.97790	0.97783	0.97777	0.97770	0.97763	0.97757	103.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
104.00	0.97750	0.97743	0.97737	0.97730	0.97723	0.97717	0.97710	0.97703	0.97697	0.97690	104.00
104.10	0.97683	0.97677	0.97670	0.97664	0.97657	0.97650	0.97644	0.97637	0.97630	0.97624	104.10
104.20	0.97617	0.97610	0.97604	0.97597	0.97591	0.97584	0.97577	0.97571	0.97564	0.97557	104.20
104.30	0.97551	0.97544	0.97538	0.97531	0.97524	0.97518	0.97511	0.97505	0.97498	0.97491	104.30
104.40	0.97485	0.97478	0.97472	0.97465	0.97458	0.97452	0.97445	0.97439	0.97432	0.97425	104.40
104.50	0.97419	0.97412	0.97406	0.97399	0.97393	0.97386	0.97379	0.97373	0.97366	0.97360	104.50
104.60	0.97353	0.97347	0.97340	0.97333	0.97327	0.97320	0.97314	0.97307	0.97301	0.97294	104.60
104.70	0.97288	0.97281	0.97274	0.97268	0.97261	0.97255	0.97248	0.97242	0.97235	0.97229	104.70
104.80	0.97222	0.97216	0.97209	0.97203	0.97196	0.97189	0.97183	0.97176	0.97170	0.97163	104.80
104.90	0.97157	0.97150	0.97144	0.97137	0.97131	0.97124	0.97118	0.97111	0.97105	0.97098	104.90
105.00	0.97092	0.97085	0.97079	0.97072	0.97066	0.97059	0.97053	0.97046	0.97040	0.97033	105.00
105.10	0.97027	0.97020	0.97014	0.97007	0.97001	0.96994	0.96988	0.96982	0.96975	0.96969	105.10
105.20	0.96962	0.96956	0.96949	0.96943	0.96936	0.96930	0.96923	0.96917	0.96910	0.96904	105.20
105.30	0.96897	0.96891	0.96885	0.96878	0.96872	0.96865	0.96859	0.96852	0.96846	0.96839	105.30
105.40	0.96833	0.96827	0.96820	0.96814	0.96807	0.96801	0.96794	0.96788	0.96782	0.96775	105.40
105.50	0.96769	0.96762	0.96756	0.96749	0.96743	0.96737	0.96730	0.96724	0.96717	0.96711	105.50
105.60	0.96705	0.96698	0.96692	0.96685	0.96679	0.96673	0.96666	0.96660	0.96653	0.96647	105.60
105.70	0.96641	0.96634	0.96628	0.96621	0.96615	0.96609	0.96602	0.96596	0.96590	0.96583	105.70
105.80	0.96577	0.96570	0.96564	0.96558	0.96551	0.96545	0.96539	0.96532	0.96526	0.96519	105.80
105.90	0.96513	0.96507	0.96500	0.96494	0.96488	0.96481	0.96475	0.96469	0.96462	0.96456	105.90
106.00	0.96450	0.96443	0.96437	0.96431	0.96424	0.96418	0.96412	0.96405	0.96399	0.96393	106.00
106.10	0.96386	0.96380	0.96374	0.96367	0.96361	0.96355	0.96348	0.96342	0.96336	0.96329	106.10
106.20	0.96323	0.96317	0.96310	0.96304	0.96298	0.96292	0.96285	0.96279	0.96273	0.96266	106.20
106.30	0.96260	0.96254	0.96247	0.96241	0.96235	0.96229	0.96222	0.96216	0.96210	0.96203	106.30
106.40	0.96197	0.96191	0.96185	0.96178	0.96172	0.96166	0.96160	0.96153	0.96147	0.96141	106.40
106.50	0.96134	0.96128	0.96122	0.96116	0.96109	0.96103	0.96097	0.96091	0.96084	0.96078	106.50
106.60	0.96072	0.96066	0.96059	0.96053	0.96047	0.96041	0.96034	0.96028	0.96022	0.96016	106.60
106.70	0.96009	0.96003	0.95997	0.95991	0.95985	0.95978	0.95972	0.95966	0.95960	0.95953	106.70
106.80	0.95947	0.95941	0.95935	0.95929	0.95922	0.95916	0.95910	0.95904	0.95898	0.95891	106.80
106.90	0.95885	0.95879	0.95873	0.95867	0.95860	0.95854	0.95848	0.95842	0.95836	0.95829	106.90
107.00	0.95823	0.95817	0.95811	0.95805	0.95798	0.95792	0.95786	0.95780	0.95774	0.95768	107.00
107.10	0.95761	0.95755	0.95749	0.95743	0.95737	0.95731	0.95724	0.95718	0.95712	0.95706	107.10
107.20	0.95700	0.95694	0.95687	0.95681	0.95675	0.95669	0.95663	0.95657	0.95650	0.95644	107.20
107.30	0.95638	0.95632	0.95626	0.95620	0.95614	0.95608	0.95601	0.95595	0.95589	0.95583	107.30
107.40	0.95577	0.95571	0.95565	0.95558	0.95552	0.95546	0.95540	0.95534	0.95528	0.95522	107.40
107.50	0.95516	0.95510	0.95503	0.95497	0.95491	0.95485	0.95479	0.95473	0.95467	0.95461	107.50
107.60	0.95455	0.95449	0.95442	0.95436	0.95430	0.95424	0.95418	0.95412	0.95406	0.95400	107.60
107.70	0.95394	0.95388	0.95382	0.95376	0.95369	0.95363	0.95357	0.95351	0.95345	0.95339	107.70
107.80	0.95333	0.95327	0.95321	0.95315	0.95309	0.95303	0.95297	0.95291	0.95285	0.95278	107.80
107.90	0.95272	0.95266	0.95260	0.95254	0.95248	0.95242	0.95236	0.95230	0.95224	0.95218	107.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
108.00	0.95212	0.95206	0.95200	0.95194	0.95188	0.95182	0.95176	0.95170	0.95164	0.95158	108.00
108.10	0.95152	0.95146	0.95140	0.95134	0.95128	0.95122	0.95116	0.95110	0.95104	0.95098	108.10
108.20	0.95092	0.95086	0.95080	0.95074	0.95068	0.95062	0.95056	0.95050	0.95044	0.95038	108.20
108.30	0.95032	0.95026	0.95020	0.95014	0.95008	0.95002	0.94996	0.94990	0.94984	0.94978	108.30
108.40	0.94972	0.94966	0.94960	0.94954	0.94948	0.94942	0.94936	0.94930	0.94924	0.94918	108.40
108.50	0.94912	0.94906	0.94900	0.94894	0.94888	0.94882	0.94876	0.94870	0.94864	0.94858	108.50
108.60	0.94852	0.94846	0.94841	0.94835	0.94829	0.94823	0.94817	0.94811	0.94805	0.94799	108.60
108.70	0.94793	0.94787	0.94781	0.94775	0.94769	0.94763	0.94757	0.94752	0.94746	0.94740	108.70
108.80	0.94734	0.94728	0.94722	0.94716	0.94710	0.94704	0.94698	0.94692	0.94686	0.94681	108.80
108.90	0.94675	0.94669	0.94663	0.94657	0.94651	0.94645	0.94639	0.94633	0.94627	0.94622	108.90
109.00	0.94616	0.94610	0.94604	0.94598	0.94592	0.94586	0.94580	0.94574	0.94569	0.94563	109.00
109.10	0.94557	0.94551	0.94545	0.94539	0.94533	0.94528	0.94522	0.94516	0.94510	0.94504	109.10
109.20	0.94498	0.94492	0.94486	0.94481	0.94475	0.94469	0.94463	0.94457	0.94451	0.94446	109.20
109.30	0.94440	0.94434	0.94428	0.94422	0.94416	0.94410	0.94405	0.94399	0.94393	0.94387	109.30
109.40	0.94381	0.94375	0.94370	0.94364	0.94358	0.94352	0.94346	0.94340	0.94335	0.94329	109.40
109.50	0.94323	0.94317	0.94311	0.94306	0.94300	0.94294	0.94288	0.94282	0.94277	0.94271	109.50
109.60	0.94265	0.94259	0.94253	0.94248	0.94242	0.94236	0.94230	0.94224	0.94219	0.94213	109.60
109.70	0.94207	0.94201	0.94195	0.94190	0.94184	0.94178	0.94172	0.94166	0.94161	0.94155	109.70
109.80	0.94149	0.94143	0.94138	0.94132	0.94126	0.94120	0.94115	0.94109	0.94103	0.94097	109.80
109.90	0.94091	0.94086	0.94080	0.94074	0.94068	0.94063	0.94057	0.94051	0.94045	0.94040	109.90
110.00	0.94034	0.94028	0.94022	0.94017	0.94011	0.94005	0.93999	0.93994	0.93988	0.93982	110.00
110.10	0.93977	0.93971	0.93965	0.93959	0.93954	0.93948	0.93942	0.93936	0.93931	0.93925	110.10
110.20	0.93919	0.93914	0.93908	0.93902	0.93896	0.93891	0.93885	0.93879	0.93874	0.93868	110.20
110.30	0.93862	0.93857	0.93851	0.93845	0.93839	0.93834	0.93828	0.93822	0.93817	0.93811	110.30
110.40	0.93805	0.93800	0.93794	0.93788	0.93782	0.93777	0.93771	0.93765	0.93760	0.93754	110.40
110.50	0.93748	0.93743	0.93737	0.93731	0.93726	0.93720	0.93714	0.93709	0.93703	0.93697	110.50
110.60	0.93692	0.93686	0.93680	0.93675	0.93669	0.93663	0.93658	0.93652	0.93646	0.93641	110.60
110.70	0.93635	0.93630	0.93624	0.93618	0.93613	0.93607	0.93601	0.93596	0.93590	0.93584	110.70
110.80	0.93579	0.93573	0.93568	0.93562	0.93556	0.93551	0.93545	0.93539	0.93534	0.93528	110.80
110.90	0.93523	0.93517	0.93511	0.93506	0.93500	0.93494	0.93489	0.93483	0.93478	0.93472	110.90
111.00	0.93466	0.93461	0.93455	0.93450	0.93444	0.93438	0.93433	0.93427	0.93422	0.93416	111.00
111.10	0.93410	0.93405	0.93399	0.93394	0.93388	0.93382	0.93377	0.93371	0.93366	0.93360	111.10
111.20	0.93355	0.93349	0.93343	0.93338	0.93332	0.93327	0.93321	0.93316	0.93310	0.93304	111.20
111.30	0.93299	0.93293	0.93288	0.93282	0.93277	0.93271	0.93265	0.93260	0.93254	0.93249	111.30
111.40	0.93243	0.93238	0.93232	0.93227	0.93221	0.93216	0.93210	0.93204	0.93199	0.93193	111.40
111.50	0.93188	0.93182	0.93177	0.93171	0.93166	0.93160	0.93155	0.93149	0.93144	0.93138	111.50
111.60	0.93133	0.93127	0.93121	0.93116	0.93110	0.93105	0.93099	0.93094	0.93088	0.93083	111.60
111.70	0.93077	0.93072	0.93066	0.93061	0.93055	0.93050	0.93044	0.93039	0.93033	0.93028	111.70
111.80	0.93022	0.93017	0.93011	0.93006	0.93000	0.92995	0.92989	0.92984	0.92978	0.92973	111.80
111.90	0.92967	0.92962	0.92956	0.92951	0.92946	0.92940	0.92935	0.92929	0.92924	0.92918	111.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
112.00	0.92913	0.92907	0.92902	0.92896	0.92891	0.92885	0.92880	0.92874	0.92869	0.92864	112.00
112.10	0.92858	0.92853	0.92847	0.92842	0.92836	0.92831	0.92825	0.92820	0.92814	0.92809	112.10
112.20	0.92804	0.92798	0.92793	0.92787	0.92782	0.92776	0.92771	0.92766	0.92760	0.92755	112.20
112.30	0.92749	0.92744	0.92738	0.92733	0.92728	0.92722	0.92717	0.92711	0.92706	0.92700	112.30
112.40	0.92695	0.92690	0.92684	0.92679	0.92673	0.92668	0.92663	0.92657	0.92652	0.92646	112.40
112.50	0.92641	0.92636	0.92630	0.92625	0.92619	0.92614	0.92609	0.92603	0.92598	0.92592	112.50
112.60	0.92587	0.92582	0.92576	0.92571	0.92565	0.92560	0.92555	0.92549	0.92544	0.92539	112.60
112.70	0.92533	0.92528	0.92522	0.92517	0.92512	0.92506	0.92501	0.92496	0.92490	0.92485	112.70
112.80	0.92479	0.92474	0.92469	0.92463	0.92458	0.92453	0.92447	0.92442	0.92437	0.92431	112.80
112.90	0.92426	0.92421	0.92415	0.92410	0.92405	0.92399	0.92394	0.92388	0.92383	0.92378	112.90
113.00	0.92372	0.92367	0.92362	0.92356	0.92351	0.92346	0.92340	0.92335	0.92330	0.92325	113.00
113.10	0.92319	0.92314	0.92309	0.92303	0.92298	0.92293	0.92287	0.92282	0.92277	0.92271	113.10
113.20	0.92266	0.92261	0.92255	0.92250	0.92245	0.92240	0.92234	0.92229	0.92224	0.92218	113.20
113.30	0.92213	0.92208	0.92202	0.92197	0.92192	0.92187	0.92181	0.92176	0.92171	0.92165	113.30
113.40	0.92160	0.92155	0.92150	0.92144	0.92139	0.92134	0.92128	0.92123	0.92118	0.92113	113.40
113.50	0.92107	0.92102	0.92097	0.92092	0.92086	0.92081	0.92076	0.92070	0.92065	0.92060	113.50
113.60	0.92055	0.92049	0.92044	0.92039	0.92034	0.92028	0.92023	0.92018	0.92013	0.92007	113.60
113.70	0.92002	0.91997	0.91992	0.91986	0.91981	0.91976	0.91971	0.91966	0.91960	0.91955	113.70
113.80	0.91950	0.91945	0.91939	0.91934	0.91929	0.91924	0.91918	0.91913	0.91908	0.91903	113.80
113.90	0.91898	0.91892	0.91887	0.91882	0.91877	0.91872	0.91866	0.91861	0.91856	0.91851	113.90
114.00	0.91845	0.91840	0.91835	0.91830	0.91825	0.91819	0.91814	0.91809	0.91804	0.91799	114.00
114.10	0.91793	0.91788	0.91783	0.91778	0.91773	0.91768	0.91762	0.91757	0.91752	0.91747	114.10
114.20	0.91742	0.91736	0.91731	0.91726	0.91721	0.91716	0.91711	0.91705	0.91700	0.91695	114.20
114.30	0.91690	0.91685	0.91680	0.91674	0.91669	0.91664	0.91659	0.91654	0.91649	0.91643	114.30
114.40	0.91638	0.91633	0.91628	0.91623	0.91618	0.91613	0.91607	0.91602	0.91597	0.91592	114.40
114.50	0.91587	0.91582	0.91577	0.91571	0.91566	0.91561	0.91556	0.91551	0.91546	0.91541	114.50
114.60	0.91535	0.91530	0.91525	0.91520	0.91515	0.91510	0.91505	0.91500	0.91495	0.91489	114.60
114.70	0.91484	0.91479	0.91474	0.91469	0.91464	0.91459	0.91454	0.91448	0.91443	0.91438	114.70
114.80	0.91433	0.91428	0.91423	0.91418	0.91413	0.91408	0.91403	0.91397	0.91392	0.91387	114.80
114.90	0.91382	0.91377	0.91372	0.91367	0.91362	0.91357	0.91352	0.91347	0.91342	0.91336	114.90
115.00	0.91331	0.91326	0.91321	0.91316	0.91311	0.91306	0.91301	0.91296	0.91291	0.91286	115.00
115.10	0.91281	0.91276	0.91271	0.91265	0.91260	0.91255	0.91250	0.91245	0.91240	0.91235	115.10
115.20	0.91230	0.91225	0.91220	0.91215	0.91210	0.91205	0.91200	0.91195	0.91190	0.91185	115.20
115.30	0.91180	0.91175	0.91170	0.91164	0.91159	0.91154	0.91149	0.91144	0.91139	0.91134	115.30
115.40	0.91129	0.91124	0.91119	0.91114	0.91109	0.91104	0.91099	0.91094	0.91089	0.91084	115.40
115.50	0.91079	0.91074	0.91069	0.91064	0.91059	0.91054	0.91049	0.91044	0.91039	0.91034	115.50
115.60	0.91029	0.91024	0.91019	0.91014	0.91009	0.91004	0.90999	0.90994	0.90989	0.90984	115.60
115.70	0.90979	0.90974	0.90969	0.90964	0.90959	0.90954	0.90949	0.90944	0.90939	0.90934	115.70
115.80	0.90929	0.90924	0.90919	0.90914	0.90909	0.90904	0.90899	0.90894	0.90889	0.90884	115.80
115.90	0.90879	0.90874	0.90870	0.90865	0.90860	0.90855	0.90850	0.90845	0.90840	0.90835	115.90

Conversion Table - Degrees Two Theta to Interplaner Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
116.00	0.90830	0.90825	0.90820	0.90815	0.90810	0.90805	0.90800	0.90795	0.90790	0.90785	116.00
116.10	0.90780	0.90775	0.90771	0.90766	0.90761	0.90756	0.90751	0.90746	0.90741	0.90736	116.10
116.20	0.90731	0.90726	0.90721	0.90716	0.90711	0.90706	0.90702	0.90697	0.90692	0.90687	116.20
116.30	0.90682	0.90677	0.90672	0.90667	0.90662	0.90657	0.90652	0.90647	0.90643	0.90638	116.30
116.40	0.90633	0.90628	0.90623	0.90618	0.90613	0.90608	0.90603	0.90598	0.90594	0.90589	116.40
116.50	0.90584	0.90579	0.90574	0.90569	0.90564	0.90559	0.90554	0.90550	0.90545	0.90540	116.50
116.60	0.90535	0.90530	0.90525	0.90520	0.90515	0.90511	0.90506	0.90501	0.90496	0.90491	116.60
116.70	0.90486	0.90481	0.90476	0.90472	0.90467	0.90462	0.90457	0.90452	0.90447	0.90442	116.70
116.80	0.90438	0.90433	0.90428	0.90423	0.90418	0.90413	0.90408	0.90404	0.90399	0.90394	116.80
116.90	0.90389	0.90384	0.90379	0.90375	0.90370	0.90365	0.90360	0.90355	0.90350	0.90346	116.90
117.00	0.90341	0.90336	0.90331	0.90326	0.90321	0.90317	0.90312	0.90307	0.90302	0.90297	117.00
117.10	0.90292	0.90288	0.90283	0.90278	0.90273	0.90268	0.90264	0.90259	0.90254	0.90249	117.10
117.20	0.90244	0.90240	0.90235	0.90230	0.90225	0.90220	0.90215	0.90211	0.90206	0.90201	117.20
117.30	0.90196	0.90192	0.90187	0.90182	0.90177	0.90172	0.90168	0.90163	0.90158	0.90153	117.30
117.40	0.90148	0.90144	0.90139	0.90134	0.90129	0.90125	0.90120	0.90115	0.90110	0.90105	117.40
117.50	0.90101	0.90096	0.90091	0.90086	0.90082	0.90077	0.90072	0.90067	0.90063	0.90058	117.50
117.60	0.90053	0.90048	0.90043	0.90039	0.90034	0.90029	0.90024	0.90020	0.90015	0.90010	117.60
117.70	0.90005	0.90001	0.89996	0.89991	0.89986	0.89982	0.89977	0.89972	0.89968	0.89963	117.70
117.80	0.89958	0.89953	0.89949	0.89944	0.89939	0.89934	0.89930	0.89925	0.89920	0.89915	117.80
117.90	0.89911	0.89906	0.89901	0.89897	0.89892	0.89887	0.89882	0.89878	0.89873	0.89868	117.90
118.00	0.89864	0.89859	0.89854	0.89849	0.89845	0.89840	0.89835	0.89831	0.89826	0.89821	118.00
118.10	0.89816	0.89812	0.89807	0.89802	0.89798	0.89793	0.89788	0.89784	0.89779	0.89774	118.10
118.20	0.89770	0.89765	0.89760	0.89755	0.89751	0.89746	0.89741	0.89737	0.89732	0.89727	118.20
118.30	0.89723	0.89718	0.89713	0.89709	0.89704	0.89699	0.89695	0.89690	0.89685	0.89681	118.30
118.40	0.89676	0.89671	0.89667	0.89662	0.89657	0.89653	0.89648	0.89643	0.89639	0.89634	118.40
118.50	0.89629	0.89625	0.89620	0.89615	0.89611	0.89606	0.89602	0.89597	0.89592	0.89588	118.50
118.60	0.89583	0.89578	0.89574	0.89569	0.89564	0.89560	0.89555	0.89550	0.89546	0.89541	118.60
118.70	0.89537	0.89532	0.89527	0.89523	0.89518	0.89513	0.89509	0.89504	0.89500	0.89495	118.70
118.80	0.89490	0.89486	0.89481	0.89476	0.89472	0.89467	0.89463	0.89458	0.89453	0.89449	118.80
118.90	0.89444	0.89440	0.89435	0.89430	0.89426	0.89421	0.89417	0.89412	0.89407	0.89403	118.90
119.00	0.89398	0.89394	0.89389	0.89384	0.89380	0.89375	0.89371	0.89366	0.89361	0.89357	119.00
119.10	0.89352	0.89348	0.89343	0.89339	0.89334	0.89329	0.89325	0.89320	0.89316	0.89311	119.10
119.20	0.89307	0.89302	0.89297	0.89293	0.89288	0.89284	0.89279	0.89275	0.89270	0.89265	119.20
119.30	0.89261	0.89256	0.89252	0.89247	0.89243	0.89238	0.89234	0.89229	0.89224	0.89220	119.30
119.40	0.89215	0.89211	0.89206	0.89202	0.89197	0.89193	0.89188	0.89183	0.89179	0.89174	119.40
119.50	0.89170	0.89165	0.89161	0.89156	0.89152	0.89147	0.89143	0.89138	0.89134	0.89129	119.50
119.60	0.89125	0.89120	0.89115	0.89111	0.89106	0.89102	0.89097	0.89093	0.89088	0.89084	119.60
119.70	0.89079	0.89075	0.89070	0.89066	0.89061	0.89057	0.89052	0.89048	0.89043	0.89039	119.70
119.80	0.89034	0.89030	0.89025	0.89021	0.89016	0.89012	0.89007	0.89003	0.88998	0.88994	119.80
119.90	0.88989	0.88985	0.88980	0.88976	0.88971	0.88967	0.88962	0.88958	0.88953	0.88949	119.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
120.00	0.88944	0.88940	0.88935	0.88931	0.88926	0.88922	0.88918	0.88913	0.88909	0.88904	120.00
120.10	0.88900	0.88895	0.88891	0.88886	0.88882	0.88877	0.88873	0.88868	0.88864	0.88859	120.10
120.20	0.88855	0.88851	0.88846	0.88842	0.88837	0.88833	0.88828	0.88824	0.88819	0.88815	120.20
120.30	0.88810	0.88806	0.88802	0.88797	0.88793	0.88788	0.88784	0.88779	0.88775	0.88770	120.30
120.40	0.88766	0.88762	0.88757	0.88753	0.88748	0.88744	0.88739	0.88735	0.88731	0.88726	120.40
120.50	0.88722	0.88717	0.88713	0.88708	0.88704	0.88700	0.88695	0.88691	0.88686	0.88682	120.50
120.60	0.88678	0.88673	0.88669	0.88664	0.88660	0.88655	0.88651	0.88647	0.88642	0.88638	120.60
120.70	0.88633	0.88629	0.88625	0.88620	0.88616	0.88611	0.88607	0.88603	0.88598	0.88594	120.70
120.80	0.88589	0.88585	0.88581	0.88576	0.88572	0.88568	0.88563	0.88559	0.88554	0.88550	120.80
120.90	0.88546	0.88541	0.88537	0.88532	0.88528	0.88524	0.88519	0.88515	0.88511	0.88506	120.90
121.00	0.88502	0.88497	0.88493	0.88489	0.88484	0.88480	0.88476	0.88471	0.88467	0.88463	121.00
121.10	0.88458	0.88454	0.88450	0.88445	0.88441	0.88436	0.88432	0.88428	0.88423	0.88419	121.10
121.20	0.88415	0.88410	0.88406	0.88402	0.88397	0.88393	0.88389	0.88384	0.88380	0.88376	121.20
121.30	0.88371	0.88367	0.88363	0.88358	0.88354	0.88350	0.88345	0.88341	0.88337	0.88332	121.30
121.40	0.88328	0.88324	0.88319	0.88315	0.88311	0.88306	0.88302	0.88298	0.88293	0.88289	121.40
121.50	0.88285	0.88280	0.88276	0.88272	0.88268	0.88263	0.88259	0.88255	0.88250	0.88246	121.50
121.60	0.88242	0.88237	0.88233	0.88229	0.88224	0.88220	0.88216	0.88212	0.88207	0.88203	121.60
121.70	0.88199	0.88194	0.88190	0.88186	0.88182	0.88177	0.88173	0.88169	0.88164	0.88160	121.70
121.80	0.88156	0.88152	0.88147	0.88143	0.88139	0.88134	0.88130	0.88126	0.88122	0.88117	121.80
121.90	0.88113	0.88109	0.88105	0.88100	0.88096	0.88092	0.88087	0.88083	0.88079	0.88075	121.90
122.00	0.88070	0.88066	0.88062	0.88058	0.88053	0.88049	0.88045	0.88041	0.88036	0.88032	122.00
122.10	0.88028	0.88024	0.88019	0.88015	0.88011	0.88007	0.88002	0.87998	0.87994	0.87990	122.10
122.20	0.87985	0.87981	0.87977	0.87973	0.87968	0.87964	0.87960	0.87956	0.87952	0.87947	122.20
122.30	0.87943	0.87939	0.87935	0.87930	0.87926	0.87922	0.87918	0.87914	0.87909	0.87905	122.30
122.40	0.87901	0.87897	0.87892	0.87888	0.87884	0.87880	0.87876	0.87871	0.87867	0.87863	122.40
122.50	0.87859	0.87855	0.87850	0.87846	0.87842	0.87838	0.87834	0.87829	0.87825	0.87821	122.50
122.60	0.87817	0.87813	0.87808	0.87804	0.87800	0.87796	0.87792	0.87787	0.87783	0.87779	122.60
122.70	0.87775	0.87771	0.87766	0.87762	0.87758	0.87754	0.87750	0.87746	0.87741	0.87737	122.70
122.80	0.87733	0.87729	0.87725	0.87721	0.87716	0.87712	0.87708	0.87704	0.87700	0.87695	122.80
122.90	0.87691	0.87687	0.87683	0.87679	0.87675	0.87671	0.87666	0.87662	0.87658	0.87654	122.90
123.00	0.87650	0.87646	0.87641	0.87637	0.87633	0.87629	0.87625	0.87621	0.87617	0.87612	123.00
123.10	0.87608	0.87604	0.87600	0.87596	0.87592	0.87588	0.87583	0.87579	0.87575	0.87571	123.10
123.20	0.87567	0.87563	0.87559	0.87555	0.87550	0.87546	0.87542	0.87538	0.87534	0.87530	123.20
123.30	0.87526	0.87522	0.87517	0.87513	0.87509	0.87505	0.87501	0.87497	0.87493	0.87489	123.30
123.40	0.87484	0.87480	0.87476	0.87472	0.87468	0.87464	0.87460	0.87456	0.87452	0.87448	123.40
123.50	0.87443	0.87439	0.87435	0.87431	0.87427	0.87423	0.87419	0.87415	0.87411	0.87407	123.50
123.60	0.87402	0.87398	0.87394	0.87390	0.87386	0.87382	0.87378	0.87374	0.87370	0.87366	123.60
123.70	0.87362	0.87358	0.87353	0.87349	0.87345	0.87341	0.87337	0.87333	0.87329	0.87325	123.70
123.80	0.87321	0.87317	0.87313	0.87309	0.87305	0.87301	0.87296	0.87292	0.87288	0.87284	123.80
123.90	0.87280	0.87276	0.87272	0.87268	0.87264	0.87260	0.87256	0.87252	0.87248	0.87244	123.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
124.00	0.87240	0.87236	0.87232	0.87228	0.87224	0.87219	0.87215	0.87211	0.87207	0.87203	124.00
124.10	0.87199	0.87195	0.87191	0.87187	0.87183	0.87179	0.87175	0.87171	0.87167	0.87163	124.10
124.20	0.87159	0.87155	0.87151	0.87147	0.87143	0.87139	0.87135	0.87131	0.87127	0.87123	124.20
124.30	0.87119	0.87115	0.87111	0.87107	0.87103	0.87099	0.87095	0.87091	0.87087	0.87083	124.30
124.40	0.87079	0.87075	0.87071	0.87067	0.87063	0.87059	0.87055	0.87051	0.87047	0.87043	124.40
124.50	0.87039	0.87035	0.87031	0.87027	0.87023	0.87019	0.87015	0.87011	0.87007	0.87003	124.50
124.60	0.86999	0.86995	0.86991	0.86987	0.86983	0.86979	0.86975	0.86971	0.86967	0.86963	124.60
124.70	0.86959	0.86955	0.86951	0.86947	0.86943	0.86939	0.86935	0.86931	0.86927	0.86923	124.70
124.80	0.86919	0.86915	0.86911	0.86907	0.86903	0.86899	0.86895	0.86891	0.86888	0.86884	124.80
124.90	0.86880	0.86876	0.86872	0.86868	0.86864	0.86860	0.86856	0.86852	0.86848	0.86844	124.90
125.00	0.86840	0.86836	0.86832	0.86828	0.86824	0.86820	0.86816	0.86812	0.86809	0.86805	125.00
125.10	0.86801	0.86797	0.86793	0.86789	0.86785	0.86781	0.86777	0.86773	0.86769	0.86765	125.10
125.20	0.86761	0.86757	0.86754	0.86750	0.86746	0.86742	0.86738	0.86734	0.86730	0.86726	125.20
125.30	0.86722	0.86718	0.86714	0.86710	0.86707	0.86703	0.86699	0.86695	0.86691	0.86687	125.30
125.40	0.86683	0.86679	0.86675	0.86671	0.86667	0.86664	0.86660	0.86656	0.86652	0.86648	125.40
125.50	0.86644	0.86640	0.86636	0.86632	0.86629	0.86625	0.86621	0.86617	0.86613	0.86609	125.50
125.60	0.86605	0.86601	0.86597	0.86594	0.86590	0.86586	0.86582	0.86578	0.86574	0.86570	125.60
125.70	0.86566	0.86563	0.86559	0.86555	0.86551	0.86547	0.86543	0.86539	0.86535	0.86532	125.70
125.80	0.86528	0.86524	0.86520	0.86516	0.86512	0.86508	0.86505	0.86501	0.86497	0.86493	125.80
125.90	0.86489	0.86485	0.86481	0.86478	0.86474	0.86470	0.86466	0.86462	0.86458	0.86455	125.90
126.00	0.86451	0.86447	0.86443	0.86439	0.86435	0.86431	0.86428	0.86424	0.86420	0.86416	126.00
126.10	0.86412	0.86408	0.86405	0.86401	0.86397	0.86393	0.86389	0.86385	0.86382	0.86378	126.10
126.20	0.86374	0.86370	0.86366	0.86363	0.86359	0.86355	0.86351	0.86347	0.86343	0.86340	126.20
126.30	0.86336	0.86332	0.86328	0.86324	0.86321	0.86317	0.86313	0.86309	0.86305	0.86302	126.30
126.40	0.86298	0.86294	0.86290	0.86286	0.86282	0.86279	0.86275	0.86271	0.86267	0.86263	126.40
126.50	0.86260	0.86256	0.86252	0.86248	0.86245	0.86241	0.86237	0.86233	0.86229	0.86226	126.50
126.60	0.86222	0.86218	0.86214	0.86210	0.86207	0.86203	0.86199	0.86195	0.86192	0.86188	126.60
126.70	0.86184	0.86180	0.86176	0.86173	0.86169	0.86165	0.86161	0.86158	0.86154	0.86150	126.70
126.80	0.86146	0.86143	0.86139	0.86135	0.86131	0.86128	0.86124	0.86120	0.86116	0.86112	126.80
126.90	0.86109	0.86105	0.86101	0.86097	0.86094	0.86090	0.86086	0.86082	0.86079	0.86075	126.90
127.00	0.86071	0.86067	0.86064	0.86060	0.86056	0.86053	0.86049	0.86045	0.86041	0.86038	127.00
127.10	0.86034	0.86030	0.86026	0.86023	0.86019	0.86015	0.86011	0.86008	0.86004	0.86000	127.10
127.20	0.85997	0.85993	0.85989	0.85985	0.85982	0.85978	0.85974	0.85970	0.85967	0.85963	127.20
127.30	0.85959	0.85956	0.85952	0.85948	0.85944	0.85941	0.85937	0.85933	0.85930	0.85926	127.30
127.40	0.85922	0.85919	0.85915	0.85911	0.85907	0.85904	0.85900	0.85896	0.85893	0.85889	127.40
127.50	0.85885	0.85882	0.85878	0.85874	0.85870	0.85867	0.85863	0.85859	0.85856	0.85852	127.50
127.60	0.85848	0.85845	0.85841	0.85837	0.85834	0.85830	0.85826	0.85823	0.85819	0.85815	127.60
127.70	0.85811	0.85808	0.85804	0.85800	0.85797	0.85793	0.85789	0.85786	0.85782	0.85778	127.70
127.80	0.85775	0.85771	0.85767	0.85764	0.85760	0.85756	0.85753	0.85749	0.85745	0.85742	127.80
127.90	0.85738	0.85734	0.85731	0.85727	0.85724	0.85720	0.85716	0.85713	0.85709	0.85705	127.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
128.00	0.85702	0.85698	0.85694	0.85691	0.85687	0.85683	0.85680	0.85676	0.85672	0.85669	128.00
128.10	0.85665	0.85662	0.85658	0.85654	0.85651	0.85647	0.85643	0.85640	0.85636	0.85632	128.10
128.20	0.85629	0.85625	0.85622	0.85618	0.85614	0.85611	0.85607	0.85603	0.85600	0.85596	128.20
128.30	0.85593	0.85589	0.85585	0.85582	0.85578	0.85575	0.85571	0.85567	0.85564	0.85560	128.30
128.40	0.85556	0.85553	0.85549	0.85546	0.85542	0.85538	0.85535	0.85531	0.85528	0.85524	128.40
128.50	0.85520	0.85517	0.85513	0.85510	0.85506	0.85502	0.85499	0.85495	0.85492	0.85488	128.50
128.60	0.85484	0.85481	0.85477	0.85474	0.85470	0.85467	0.85463	0.85459	0.85456	0.85452	128.60
128.70	0.85449	0.85445	0.85441	0.85438	0.85434	0.85431	0.85427	0.85424	0.85420	0.85416	128.70
128.80	0.85413	0.85409	0.85406	0.85402	0.85399	0.85395	0.85391	0.85388	0.85384	0.85381	128.80
128.90	0.85377	0.85374	0.85370	0.85367	0.85363	0.85359	0.85356	0.85352	0.85349	0.85345	128.90
129.00	0.85342	0.85338	0.85335	0.85331	0.85327	0.85324	0.85320	0.85317	0.85313	0.85310	129.00
129.10	0.85306	0.85303	0.85299	0.85296	0.85292	0.85288	0.85285	0.85281	0.85278	0.85274	129.10
129.20	0.85271	0.85267	0.85264	0.85260	0.85257	0.85253	0.85250	0.85246	0.85243	0.85239	129.20
129.30	0.85235	0.85232	0.85228	0.85225	0.85221	0.85218	0.85214	0.85211	0.85207	0.85204	129.30
129.40	0.85200	0.85197	0.85193	0.85190	0.85186	0.85183	0.85179	0.85176	0.85172	0.85169	129.40
129.50	0.85165	0.85162	0.85158	0.85155	0.85151	0.85148	0.85144	0.85141	0.85137	0.85134	129.50
129.60	0.85130	0.85127	0.85123	0.85120	0.85116	0.85113	0.85109	0.85106	0.85102	0.85099	129.60
129.70	0.85095	0.85092	0.85088	0.85085	0.85081	0.85078	0.85074	0.85071	0.85067	0.85064	129.70
129.80	0.85060	0.85057	0.85054	0.85050	0.85047	0.85043	0.85040	0.85036	0.85033	0.85029	129.80
129.90	0.85026	0.85022	0.85019	0.85015	0.85012	0.85008	0.85005	0.85001	0.84998	0.84995	129.90
130.00	0.84991	0.84988	0.84984	0.84981	0.84977	0.84974	0.84970	0.84967	0.84963	0.84960	130.00
130.10	0.84957	0.84953	0.84950	0.84946	0.84943	0.84939	0.84936	0.84932	0.84929	0.84926	130.10
130.20	0.84922	0.84919	0.84915	0.84912	0.84908	0.84905	0.84901	0.84898	0.84895	0.84891	130.20
130.30	0.84888	0.84884	0.84881	0.84877	0.84874	0.84871	0.84867	0.84864	0.84860	0.84857	130.30
130.40	0.84854	0.84850	0.84847	0.84843	0.84840	0.84836	0.84833	0.84830	0.84826	0.84823	130.40
130.50	0.84819	0.84816	0.84813	0.84809	0.84806	0.84802	0.84799	0.84795	0.84792	0.84789	130.50
130.60	0.84785	0.84782	0.84778	0.84775	0.84772	0.84768	0.84765	0.84761	0.84758	0.84755	130.60
130.70	0.84751	0.84748	0.84744	0.84741	0.84738	0.84734	0.84731	0.84728	0.84724	0.84721	130.70
130.80	0.84717	0.84714	0.84711	0.84707	0.84704	0.84700	0.84697	0.84694	0.84690	0.84687	130.80
130.90	0.84684	0.84680	0.84677	0.84673	0.84670	0.84667	0.84663	0.84660	0.84657	0.84653	130.90
131.00	0.84650	0.84647	0.84643	0.84640	0.84636	0.84633	0.84630	0.84626	0.84623	0.84620	131.00
131.10	0.84616	0.84613	0.84610	0.84606	0.84603	0.84599	0.84596	0.84593	0.84589	0.84586	131.10
131.20	0.84583	0.84579	0.84576	0.84573	0.84569	0.84566	0.84563	0.84559	0.84556	0.84553	131.20
131.30	0.84549	0.84546	0.84543	0.84539	0.84536	0.84533	0.84529	0.84526	0.84523	0.84519	131.30
131.40	0.84516	0.84513	0.84509	0.84506	0.84503	0.84499	0.84496	0.84493	0.84489	0.84486	131.40
131.50	0.84483	0.84479	0.84476	0.84473	0.84469	0.84466	0.84463	0.84459	0.84456	0.84453	131.50
131.60	0.84450	0.84446	0.84443	0.84440	0.84436	0.84433	0.84430	0.84426	0.84423	0.84420	131.60
131.70	0.84416	0.84413	0.84410	0.84407	0.84403	0.84400	0.84397	0.84393	0.84390	0.84387	131.70
131.80	0.84383	0.84380	0.84377	0.84374	0.84370	0.84367	0.84364	0.84360	0.84357	0.84354	131.80
131.90	0.84351	0.84347	0.84344	0.84341	0.84337	0.84334	0.84331	0.84328	0.84324	0.84321	131.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
132.00	0.84318	0.84314	0.84311	0.84308	0.84305	0.84301	0.84298	0.84295	0.84292	0.84288	132.00
132.10	0.84285	0.84282	0.84279	0.84275	0.84272	0.84269	0.84265	0.84262	0.84259	0.84256	132.10
132.20	0.84252	0.84249	0.84246	0.84243	0.84239	0.84236	0.84233	0.84230	0.84226	0.84223	132.20
132.30	0.84220	0.84217	0.84213	0.84210	0.84207	0.84204	0.84200	0.84197	0.84194	0.84191	132.30
132.40	0.84187	0.84184	0.84181	0.84178	0.84174	0.84171	0.84168	0.84165	0.84162	0.84158	132.40
132.50	0.84155	0.84152	0.84149	0.84145	0.84142	0.84139	0.84136	0.84132	0.84129	0.84126	132.50
132.60	0.84123	0.84120	0.84116	0.84113	0.84110	0.84107	0.84103	0.84100	0.84097	0.84094	132.60
132.70	0.84091	0.84087	0.84084	0.84081	0.84078	0.84075	0.84071	0.84068	0.84065	0.84062	132.70
132.80	0.84059	0.84055	0.84052	0.84049	0.84046	0.84043	0.84039	0.84036	0.84033	0.84030	132.80
132.90	0.84027	0.84023	0.84020	0.84017	0.84014	0.84011	0.84007	0.84004	0.84001	0.83998	132.90
133.00	0.83995	0.83991	0.83988	0.83985	0.83982	0.83979	0.83975	0.83972	0.83969	0.83966	133.00
133.10	0.83963	0.83960	0.83956	0.83953	0.83950	0.83947	0.83944	0.83941	0.83937	0.83934	133.10
133.20	0.83931	0.83928	0.83925	0.83922	0.83918	0.83915	0.83912	0.83909	0.83906	0.83903	133.20
133.30	0.83899	0.83896	0.83893	0.83890	0.83887	0.83884	0.83880	0.83877	0.83874	0.83871	133.30
133.40	0.83868	0.83865	0.83862	0.83858	0.83855	0.83852	0.83849	0.83846	0.83843	0.83839	133.40
133.50	0.83836	0.83833	0.83830	0.83827	0.83824	0.83821	0.83818	0.83814	0.83811	0.83808	133.50
133.60	0.83805	0.83802	0.83799	0.83796	0.83792	0.83789	0.83786	0.83783	0.83780	0.83777	133.60
133.70	0.83774	0.83771	0.83767	0.83764	0.83761	0.83758	0.83755	0.83752	0.83749	0.83746	133.70
133.80	0.83742	0.83739	0.83736	0.83733	0.83730	0.83727	0.83724	0.83721	0.83718	0.83714	133.80
133.90	0.83711	0.83708	0.83705	0.83702	0.83699	0.83696	0.83693	0.83690	0.83686	0.83683	133.90
134.00	0.83680	0.83677	0.83674	0.83671	0.83668	0.83665	0.83662	0.83659	0.83656	0.83652	134.00
134.10	0.83649	0.83646	0.83643	0.83640	0.83637	0.83634	0.83631	0.83628	0.83625	0.83622	134.10
134.20	0.83618	0.83615	0.83612	0.83609	0.83606	0.83603	0.83600	0.83597	0.83594	0.83591	134.20
134.30	0.83588	0.83585	0.83582	0.83578	0.83575	0.83572	0.83569	0.83566	0.83563	0.83560	134.30
134.40	0.83557	0.83554	0.83551	0.83548	0.83545	0.83542	0.83539	0.83536	0.83532	0.83529	134.40
134.50	0.83526	0.83523	0.83520	0.83517	0.83514	0.83511	0.83508	0.83505	0.83502	0.83499	134.50
134.60	0.83496	0.83493	0.83490	0.83487	0.83484	0.83481	0.83478	0.83475	0.83471	0.83468	134.60
134.70	0.83465	0.83462	0.83459	0.83456	0.83453	0.83450	0.83447	0.83444	0.83441	0.83438	134.70
134.80	0.83435	0.83432	0.83429	0.83426	0.83423	0.83420	0.83417	0.83414	0.83411	0.83408	134.80
134.90	0.83405	0.83402	0.83399	0.83396	0.83393	0.83390	0.83387	0.83384	0.83381	0.83378	134.90
135.00	0.83375	0.83372	0.83369	0.83366	0.83363	0.83360	0.83357	0.83354	0.83351	0.83348	135.00
135.10	0.83345	0.83342	0.83339	0.83336	0.83333	0.83330	0.83327	0.83324	0.83321	0.83318	135.10
135.20	0.83315	0.83312	0.83309	0.83306	0.83303	0.83300	0.83297	0.83294	0.83291	0.83288	135.20
135.30	0.83285	0.83282	0.83279	0.83276	0.83273	0.83270	0.83267	0.83264	0.83261	0.83258	135.30
135.40	0.83255	0.83252	0.83249	0.83246	0.83243	0.83240	0.83237	0.83234	0.83231	0.83228	135.40
135.50	0.83225	0.83222	0.83219	0.83216	0.83213	0.83210	0.83207	0.83204	0.83201	0.83198	135.50
135.60	0.83195	0.83192	0.83189	0.83186	0.83183	0.83181	0.83178	0.83175	0.83172	0.83169	135.60
135.70	0.83166	0.83163	0.83160	0.83157	0.83154	0.83151	0.83148	0.83145	0.83142	0.83139	135.70
135.80	0.83136	0.83133	0.83130	0.83127	0.83124	0.83122	0.83119	0.83116	0.83113	0.83110	135.80
135.90	0.83107	0.83104	0.83101	0.83098	0.83095	0.83092	0.83089	0.83086	0.83083	0.83080	135.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
136.00	0.83077	0.83075	0.83072	0.83069	0.83066	0.83063	0.83060	0.83057	0.83054	0.83051	136.00
136.10	0.83048	0.83045	0.83042	0.83039	0.83037	0.83034	0.83031	0.83028	0.83025	0.83022	136.10
136.20	0.83019	0.83016	0.83013	0.83010	0.83007	0.83005	0.83002	0.82999	0.82996	0.82993	136.20
136.30	0.82990	0.82987	0.82984	0.82981	0.82978	0.82975	0.82973	0.82970	0.82967	0.82964	136.30
136.40	0.82961	0.82958	0.82955	0.82952	0.82949	0.82947	0.82944	0.82941	0.82938	0.82935	136.40
136.50	0.82932	0.82929	0.82926	0.82923	0.82921	0.82918	0.82915	0.82912	0.82909	0.82906	136.50
136.60	0.82903	0.82900	0.82897	0.82895	0.82892	0.82889	0.82886	0.82883	0.82880	0.82877	136.60
136.70	0.82874	0.82872	0.82869	0.82866	0.82863	0.82860	0.82857	0.82854	0.82852	0.82849	136.70
136.80	0.82846	0.82843	0.82840	0.82837	0.82834	0.82832	0.82829	0.82826	0.82823	0.82820	136.80
136.90	0.82817	0.82814	0.82812	0.82809	0.82806	0.82803	0.82800	0.82797	0.82794	0.82792	136.90
137.00	0.82789	0.82786	0.82783	0.82780	0.82777	0.82775	0.82772	0.82769	0.82766	0.82763	137.00
137.10	0.82760	0.82757	0.82755	0.82752	0.82749	0.82746	0.82743	0.82740	0.82738	0.82735	137.10
137.20	0.82732	0.82729	0.82726	0.82724	0.82721	0.82718	0.82715	0.82712	0.82709	0.82707	137.20
137.30	0.82704	0.82701	0.82698	0.82695	0.82692	0.82690	0.82687	0.82684	0.82681	0.82678	137.30
137.40	0.82676	0.82673	0.82670	0.82667	0.82664	0.82662	0.82659	0.82656	0.82653	0.82650	137.40
137.50	0.82647	0.82645	0.82642	0.82639	0.82636	0.82633	0.82631	0.82628	0.82625	0.82622	137.50
137.60	0.82619	0.82617	0.82614	0.82611	0.82608	0.82605	0.82603	0.82600	0.82597	0.82594	137.60
137.70	0.82592	0.82589	0.82586	0.82583	0.82580	0.82578	0.82575	0.82572	0.82569	0.82566	137.70
137.80	0.82564	0.82561	0.82558	0.82555	0.82553	0.82550	0.82547	0.82544	0.82541	0.82539	137.80
137.90	0.82536	0.82533	0.82530	0.82528	0.82525	0.82522	0.82519	0.82517	0.82514	0.82511	137.90
138.00	0.82508	0.82506	0.82503	0.82500	0.82497	0.82494	0.82492	0.82489	0.82486	0.82483	138.00
138.10	0.82481	0.82478	0.82475	0.82472	0.82470	0.82467	0.82464	0.82461	0.82459	0.82456	138.10
138.20	0.82453	0.82450	0.82448	0.82445	0.82442	0.82439	0.82437	0.82434	0.82431	0.82428	138.20
138.30	0.82426	0.82423	0.82420	0.82417	0.82415	0.82412	0.82409	0.82407	0.82404	0.82401	138.30
138.40	0.82398	0.82396	0.82393	0.82390	0.82387	0.82385	0.82382	0.82379	0.82377	0.82374	138.40
138.50	0.82371	0.82368	0.82366	0.82363	0.82360	0.82357	0.82355	0.82352	0.82349	0.82347	138.50
138.60	0.82344	0.82341	0.82338	0.82336	0.82333	0.82330	0.82328	0.82325	0.82322	0.82319	138.60
138.70	0.82317	0.82314	0.82311	0.82309	0.82306	0.82303	0.82301	0.82298	0.82295	0.82292	138.70
138.80	0.82290	0.82287	0.82284	0.82282	0.82279	0.82276	0.82274	0.82271	0.82268	0.82265	138.80
138.90	0.82263	0.82260	0.82257	0.82255	0.82252	0.82249	0.82247	0.82244	0.82241	0.82239	138.90
139.00	0.82236	0.82233	0.82231	0.82228	0.82225	0.82223	0.82220	0.82217	0.82214	0.82212	139.00
139.10	0.82209	0.82206	0.82204	0.82201	0.82198	0.82196	0.82193	0.82190	0.82188	0.82185	139.10
139.20	0.82182	0.82180	0.82177	0.82174	0.82172	0.82169	0.82166	0.82164	0.82161	0.82158	139.20
139.30	0.82156	0.82153	0.82150	0.82148	0.82145	0.82143	0.82140	0.82137	0.82135	0.82132	139.30
139.40	0.82129	0.82127	0.82124	0.82121	0.82119	0.82116	0.82113	0.82111	0.82108	0.82105	139.40
139.50	0.82103	0.82100	0.82097	0.82095	0.82092	0.82090	0.82087	0.82084	0.82082	0.82079	139.50
139.60	0.82076	0.82074	0.82071	0.82068	0.82066	0.82063	0.82061	0.82058	0.82055	0.82053	139.60
139.70	0.82050	0.82047	0.82045	0.82042	0.82040	0.82037	0.82034	0.82032	0.82029	0.82026	139.70
139.80	0.82024	0.82021	0.82019	0.82016	0.82013	0.82011	0.82008	0.82006	0.82003	0.82000	139.80
139.90	0.81998	0.81995	0.81992	0.81990	0.81987	0.81985	0.81982	0.81979	0.81977	0.81974	139.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
140.00	0.81972	0.81969	0.81966	0.81964	0.81961	0.81959	0.81956	0.81953	0.81951	0.81948	140.00
140.10	0.81946	0.81943	0.81940	0.81938	0.81935	0.81933	0.81930	0.81927	0.81925	0.81922	140.10
140.20	0.81920	0.81917	0.81915	0.81912	0.81909	0.81907	0.81904	0.81902	0.81899	0.81896	140.20
140.30	0.81894	0.81891	0.81889	0.81886	0.81884	0.81881	0.81878	0.81876	0.81873	0.81871	140.30
140.40	0.81868	0.81866	0.81863	0.81860	0.81858	0.81855	0.81853	0.81850	0.81848	0.81845	140.40
140.50	0.81842	0.81840	0.81837	0.81835	0.81832	0.81830	0.81827	0.81824	0.81822	0.81819	140.50
140.60	0.81817	0.81814	0.81812	0.81809	0.81807	0.81804	0.81801	0.81799	0.81796	0.81794	140.60
140.70	0.81791	0.81789	0.81786	0.81784	0.81781	0.81779	0.81776	0.81773	0.81771	0.81768	140.70
140.80	0.81766	0.81763	0.81761	0.81758	0.81756	0.81753	0.81751	0.81748	0.81746	0.81743	140.80
140.90	0.81740	0.81738	0.81735	0.81733	0.81730	0.81728	0.81725	0.81723	0.81720	0.81718	140.90
141.00	0.81715	0.81713	0.81710	0.81708	0.81705	0.81703	0.81700	0.81698	0.81695	0.81692	141.00
141.10	0.81690	0.81687	0.81685	0.81682	0.81680	0.81677	0.81675	0.81672	0.81670	0.81667	141.10
141.20	0.81665	0.81662	0.81660	0.81657	0.81655	0.81652	0.81650	0.81647	0.81645	0.81642	141.20
141.30	0.81640	0.81637	0.81635	0.81632	0.81630	0.81627	0.81625	0.81622	0.81620	0.81617	141.30
141.40	0.81615	0.81612	0.81610	0.81607	0.81605	0.81602	0.81600	0.81597	0.81595	0.81592	141.40
141.50	0.81590	0.81587	0.81585	0.81582	0.81580	0.81577	0.81575	0.81572	0.81570	0.81568	141.50
141.60	0.81565	0.81563	0.81560	0.81558	0.81555	0.81553	0.81550	0.81548	0.81545	0.81543	141.60
141.70	0.81540	0.81538	0.81535	0.81533	0.81530	0.81528	0.81525	0.81523	0.81521	0.81518	141.70
141.80	0.81516	0.81513	0.81511	0.81508	0.81506	0.81503	0.81501	0.81498	0.81496	0.81493	141.80
141.90	0.81491	0.81489	0.81486	0.81484	0.81481	0.81479	0.81476	0.81474	0.81471	0.81469	141.90
142.00	0.81467	0.81464	0.81462	0.81459	0.81457	0.81454	0.81452	0.81449	0.81447	0.81445	142.00
142.10	0.81442	0.81440	0.81437	0.81435	0.81432	0.81430	0.81427	0.81425	0.81423	0.81420	142.10
142.20	0.81418	0.81415	0.81413	0.81410	0.81408	0.81406	0.81403	0.81401	0.81398	0.81396	142.20
142.30	0.81393	0.81391	0.81389	0.81386	0.81384	0.81381	0.81379	0.81376	0.81374	0.81372	142.30
142.40	0.81369	0.81367	0.81364	0.81362	0.81360	0.81357	0.81355	0.81352	0.81350	0.81347	142.40
142.50	0.81345	0.81343	0.81340	0.81338	0.81335	0.81333	0.81331	0.81328	0.81326	0.81323	142.50
142.60	0.81321	0.81319	0.81316	0.81314	0.81311	0.81309	0.81307	0.81304	0.81302	0.81299	142.60
142.70	0.81297	0.81295	0.81292	0.81290	0.81287	0.81285	0.81283	0.81280	0.81278	0.81276	142.70
142.80	0.81273	0.81271	0.81268	0.81266	0.81264	0.81261	0.81259	0.81256	0.81254	0.81252	142.80
142.90	0.81249	0.81247	0.81245	0.81242	0.81240	0.81237	0.81235	0.81233	0.81230	0.81228	142.90
143.00	0.81226	0.81223	0.81221	0.81218	0.81216	0.81214	0.81211	0.81209	0.81207	0.81204	143.00
143.10	0.81202	0.81199	0.81197	0.81195	0.81192	0.81190	0.81188	0.81185	0.81183	0.81181	143.10
143.20	0.81178	0.81176	0.81174	0.81171	0.81169	0.81166	0.81164	0.81162	0.81159	0.81157	143.20
143.30	0.81155	0.81152	0.81150	0.81148	0.81145	0.81143	0.81141	0.81138	0.81136	0.81134	143.30
143.40	0.81131	0.81129	0.81127	0.81124	0.81122	0.81120	0.81117	0.81115	0.81113	0.81110	143.40
143.50	0.81108	0.81106	0.81103	0.81101	0.81099	0.81096	0.81094	0.81092	0.81089	0.81087	143.50
143.60	0.81085	0.81082	0.81080	0.81078	0.81075	0.81073	0.81071	0.81068	0.81066	0.81064	143.60
143.70	0.81061	0.81059	0.81057	0.81054	0.81052	0.81050	0.81047	0.81045	0.81043	0.81041	143.70
143.80	0.81038	0.81036	0.81034	0.81031	0.81029	0.81027	0.81024	0.81022	0.81020	0.81017	143.80
143.90	0.81015	0.81013	0.81011	0.81008	0.81006	0.81004	0.81001	0.80999	0.80997	0.80994	143.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
144.00	0.80992	0.80990	0.80988	0.80985	0.80983	0.80981	0.80978	0.80976	0.80974	0.80971	144.00
144.10	0.80969	0.80967	0.80965	0.80962	0.80960	0.80958	0.80955	0.80953	0.80951	0.80949	144.10
144.20	0.80946	0.80944	0.80942	0.80940	0.80937	0.80935	0.80933	0.80930	0.80928	0.80926	144.20
144.30	0.80924	0.80921	0.80919	0.80917	0.80914	0.80912	0.80910	0.80908	0.80905	0.80903	144.30
144.40	0.80901	0.80899	0.80896	0.80894	0.80892	0.80890	0.80887	0.80885	0.80883	0.80881	144.40
144.50	0.80878	0.80876	0.80874	0.80871	0.80869	0.80867	0.80865	0.80862	0.80860	0.80858	144.50
144.60	0.80856	0.80853	0.80851	0.80849	0.80847	0.80844	0.80842	0.80840	0.80838	0.80835	144.60
144.70	0.80833	0.80831	0.80829	0.80826	0.80824	0.80822	0.80820	0.80818	0.80815	0.80813	144.70
144.80	0.80811	0.80809	0.80806	0.80804	0.80802	0.80800	0.80797	0.80795	0.80793	0.80791	144.80
144.90	0.80788	0.80786	0.80784	0.80782	0.80780	0.80777	0.80775	0.80773	0.80771	0.80768	144.90
145.00	0.80766	0.80764	0.80762	0.80760	0.80757	0.80755	0.80753	0.80751	0.80748	0.80746	145.00
145.10	0.80744	0.80742	0.80740	0.80737	0.80735	0.80733	0.80731	0.80729	0.80726	0.80724	145.10
145.20	0.80722	0.80720	0.80717	0.80715	0.80713	0.80711	0.80709	0.80706	0.80704	0.80702	145.20
145.30	0.80700	0.80698	0.80695	0.80693	0.80691	0.80689	0.80687	0.80684	0.80682	0.80680	145.30
145.40	0.80678	0.80676	0.80674	0.80671	0.80669	0.80667	0.80665	0.80663	0.80660	0.80658	145.40
145.50	0.80656	0.80654	0.80652	0.80649	0.80647	0.80645	0.80643	0.80641	0.80639	0.80636	145.50
145.60	0.80634	0.80632	0.80630	0.80628	0.80625	0.80623	0.80621	0.80619	0.80617	0.80615	145.60
145.70	0.80612	0.80610	0.80608	0.80606	0.80604	0.80602	0.80599	0.80597	0.80595	0.80593	145.70
145.80	0.80591	0.80589	0.80586	0.80584	0.80582	0.80580	0.80578	0.80576	0.80573	0.80571	145.80
145.90	0.80569	0.80567	0.80565	0.80563	0.80561	0.80558	0.80556	0.80554	0.80552	0.80550	145.90
146.00	0.80548	0.80546	0.80543	0.80541	0.80539	0.80537	0.80535	0.80533	0.80530	0.80528	146.00
146.10	0.80526	0.80524	0.80522	0.80520	0.80518	0.80515	0.80513	0.80511	0.80509	0.80507	146.10
146.20	0.80505	0.80503	0.80501	0.80498	0.80496	0.80494	0.80492	0.80490	0.80488	0.80486	146.20
146.30	0.80484	0.80481	0.80479	0.80477	0.80475	0.80473	0.80471	0.80469	0.80467	0.80464	146.30
146.40	0.80462	0.80460	0.80458	0.80456	0.80454	0.80452	0.80450	0.80447	0.80445	0.80443	146.40
146.50	0.80441	0.80439	0.80437	0.80435	0.80433	0.80431	0.80428	0.80426	0.80424	0.80422	146.50
146.60	0.80420	0.80418	0.80416	0.80414	0.80412	0.80409	0.80407	0.80405	0.80403	0.80401	146.60
146.70	0.80399	0.80397	0.80395	0.80393	0.80391	0.80389	0.80386	0.80384	0.80382	0.80380	146.70
146.80	0.80378	0.80376	0.80374	0.80372	0.80370	0.80368	0.80366	0.80363	0.80361	0.80359	146.80
146.90	0.80357	0.80355	0.80353	0.80351	0.80349	0.80347	0.80345	0.80343	0.80341	0.80338	146.90
147.00	0.80336	0.80334	0.80332	0.80330	0.80328	0.80326	0.80324	0.80322	0.80320	0.80318	147.00
147.10	0.80316	0.80314	0.80312	0.80309	0.80307	0.80305	0.80303	0.80301	0.80299	0.80297	147.10
147.20	0.80295	0.80293	0.80291	0.80289	0.80287	0.80285	0.80283	0.80281	0.80279	0.80276	147.20
147.30	0.80274	0.80272	0.80270	0.80268	0.80266	0.80264	0.80262	0.80260	0.80258	0.80256	147.30
147.40	0.80254	0.80252	0.80250	0.80248	0.80246	0.80244	0.80242	0.80240	0.80238	0.80235	147.40
147.50	0.80233	0.80231	0.80229	0.80227	0.80225	0.80223	0.80221	0.80219	0.80217	0.80215	147.50
147.60	0.80213	0.80211	0.80209	0.80207	0.80205	0.80203	0.80201	0.80199	0.80197	0.80195	147.60
147.70	0.80193	0.80191	0.80189	0.80187	0.80185	0.80183	0.80181	0.80179	0.80177	0.80175	147.70
147.80	0.80173	0.80171	0.80168	0.80166	0.80164	0.80162	0.80160	0.80158	0.80156	0.80154	147.80
147.90	0.80152	0.80150	0.80148	0.80146	0.80144	0.80142	0.80140	0.80138	0.80136	0.80134	147.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
148.00	0.80132	0.80130	0.80128	0.80126	0.80124	0.80122	0.80120	0.80118	0.80116	0.80114	148.00
148.10	0.80112	0.80110	0.80108	0.80106	0.80104	0.80102	0.80100	0.80098	0.80096	0.80094	148.10
148.20	0.80092	0.80090	0.80088	0.80086	0.80084	0.80082	0.80080	0.80078	0.80076	0.80074	148.20
148.30	0.80072	0.80070	0.80068	0.80067	0.80065	0.80063	0.80061	0.80059	0.80057	0.80055	148.30
148.40	0.80053	0.80051	0.80049	0.80047	0.80045	0.80043	0.80041	0.80039	0.80037	0.80035	148.40
148.50	0.80033	0.80031	0.80029	0.80027	0.80025	0.80023	0.80021	0.80019	0.80017	0.80015	148.50
148.60	0.80013	0.80011	0.80009	0.80007	0.80005	0.80003	0.80001	0.80000	0.79998	0.79996	148.60
148.70	0.79994	0.79992	0.79990	0.79988	0.79986	0.79984	0.79982	0.79980	0.79978	0.79976	148.70
148.80	0.79974	0.79972	0.79970	0.79968	0.79966	0.79964	0.79962	0.79961	0.79959	0.79957	148.80
148.90	0.79955	0.79953	0.79951	0.79949	0.79947	0.79945	0.79943	0.79941	0.79939	0.79937	148.90
149.00	0.79935	0.79933	0.79931	0.79930	0.79928	0.79926	0.79924	0.79922	0.79920	0.79918	149.00
149.10	0.79916	0.79914	0.79912	0.79910	0.79908	0.79906	0.79904	0.79903	0.79901	0.79899	149.10
149.20	0.79897	0.79895	0.79893	0.79891	0.79889	0.79887	0.79885	0.79883	0.79881	0.79880	149.20
149.30	0.79878	0.79876	0.79874	0.79872	0.79870	0.79868	0.79866	0.79864	0.79862	0.79860	149.30
149.40	0.79858	0.79857	0.79855	0.79853	0.79851	0.79849	0.79847	0.79845	0.79843	0.79841	149.40
149.50	0.79839	0.79838	0.79836	0.79834	0.79832	0.79830	0.79828	0.79826	0.79824	0.79822	149.50
149.60	0.79821	0.79819	0.79817	0.79815	0.79813	0.79811	0.79809	0.79807	0.79805	0.79803	149.60
149.70	0.79802	0.79800	0.79798	0.79796	0.79794	0.79792	0.79790	0.79788	0.79787	0.79785	149.70
149.80	0.79783	0.79781	0.79779	0.79777	0.79775	0.79773	0.79772	0.79770	0.79768	0.79766	149.80
149.90	0.79764	0.79762	0.79760	0.79758	0.79757	0.79755	0.79753	0.79751	0.79749	0.79747	149.90
150.00	0.79745	0.79743	0.79742	0.79740	0.79738	0.79736	0.79734	0.79732	0.79730	0.79729	150.00
150.10	0.79727	0.79725	0.79723	0.79721	0.79719	0.79717	0.79716	0.79714	0.79712	0.79710	150.10
150.20	0.79708	0.79706	0.79705	0.79703	0.79701	0.79699	0.79697	0.79695	0.79693	0.79692	150.20
150.30	0.79690	0.79688	0.79686	0.79684	0.79682	0.79681	0.79679	0.79677	0.79675	0.79673	150.30
150.40	0.79671	0.79669	0.79668	0.79666	0.79664	0.79662	0.79660	0.79658	0.79657	0.79655	150.40
150.50	0.79653	0.79651	0.79649	0.79648	0.79646	0.79644	0.79642	0.79640	0.79638	0.79637	150.50
150.60	0.79635	0.79633	0.79631	0.79629	0.79627	0.79626	0.79624	0.79622	0.79620	0.79618	150.60
150.70	0.79617	0.79615	0.79613	0.79611	0.79609	0.79607	0.79606	0.79604	0.79602	0.79600	150.70
150.80	0.79598	0.79597	0.79595	0.79593	0.79591	0.79589	0.79588	0.79586	0.79584	0.79582	150.80
150.90	0.79580	0.79579	0.79577	0.79575	0.79573	0.79571	0.79570	0.79568	0.79566	0.79564	150.90
151.00	0.79562	0.79561	0.79559	0.79557	0.79555	0.79553	0.79552	0.79550	0.79548	0.79546	151.00
151.10	0.79544	0.79543	0.79541	0.79539	0.79537	0.79535	0.79534	0.79532	0.79530	0.79528	151.10
151.20	0.79527	0.79525	0.79523	0.79521	0.79519	0.79518	0.79516	0.79514	0.79512	0.79511	151.20
151.30	0.79509	0.79507	0.79505	0.79503	0.79502	0.79500	0.79498	0.79496	0.79495	0.79493	151.30
151.40	0.79491	0.79489	0.79488	0.79486	0.79484	0.79482	0.79480	0.79479	0.79477	0.79475	151.40
151.50	0.79473	0.79472	0.79470	0.79468	0.79466	0.79465	0.79463	0.79461	0.79459	0.79458	151.50
151.60	0.79456	0.79454	0.79452	0.79451	0.79449	0.79447	0.79445	0.79444	0.79442	0.79440	151.60
151.70	0.79438	0.79437	0.79435	0.79433	0.79431	0.79430	0.79428	0.79426	0.79424	0.79423	151.70
151.80	0.79421	0.79419	0.79417	0.79416	0.79414	0.79412	0.79410	0.79409	0.79407	0.79405	151.80
151.90	0.79404	0.79402	0.79400	0.79398	0.79397	0.79395	0.79393	0.79391	0.79390	0.79388	151.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
152.00	0.79386	0.79384	0.79383	0.79381	0.79379	0.79378	0.79376	0.79374	0.79372	0.79371	152.00
152.10	0.79369	0.79367	0.79366	0.79364	0.79362	0.79360	0.79359	0.79357	0.79355	0.79354	152.10
152.20	0.79352	0.79350	0.79348	0.79347	0.79345	0.79343	0.79342	0.79340	0.79338	0.79336	152.20
152.30	0.79335	0.79333	0.79331	0.79330	0.79328	0.79326	0.79324	0.79323	0.79321	0.79319	152.30
152.40	0.79318	0.79316	0.79314	0.79313	0.79311	0.79309	0.79307	0.79306	0.79304	0.79302	152.40
152.50	0.79301	0.79299	0.79297	0.79296	0.79294	0.79292	0.79291	0.79289	0.79287	0.79285	152.50
152.60	0.79284	0.79282	0.79280	0.79279	0.79277	0.79275	0.79274	0.79272	0.79270	0.79269	152.60
152.70	0.79267	0.79265	0.79264	0.79262	0.79260	0.79259	0.79257	0.79255	0.79254	0.79252	152.70
152.80	0.79250	0.79249	0.79247	0.79245	0.79244	0.79242	0.79240	0.79239	0.79237	0.79235	152.80
152.90	0.79233	0.79232	0.79230	0.79229	0.79227	0.79225	0.79224	0.79222	0.79220	0.79219	152.90
153.00	0.79217	0.79215	0.79214	0.79212	0.79210	0.79209	0.79207	0.79205	0.79204	0.79202	153.00
153.10	0.79200	0.79199	0.79197	0.79195	0.79194	0.79192	0.79190	0.79189	0.79187	0.79185	153.10
153.20	0.79184	0.79182	0.79181	0.79179	0.79177	0.79176	0.79174	0.79172	0.79171	0.79169	153.20
153.30	0.79167	0.79166	0.79164	0.79162	0.79161	0.79159	0.79158	0.79156	0.79154	0.79153	153.30
153.40	0.79151	0.79149	0.79148	0.79146	0.79144	0.79143	0.79141	0.79140	0.79138	0.79136	153.40
153.50	0.79135	0.79133	0.79131	0.79130	0.79128	0.79127	0.79125	0.79123	0.79122	0.79120	153.50
153.60	0.79118	0.79117	0.79115	0.79114	0.79112	0.79110	0.79109	0.79107	0.79106	0.79104	153.60
153.70	0.79102	0.79101	0.79099	0.79098	0.79096	0.79094	0.79093	0.79091	0.79089	0.79088	153.70
153.80	0.79086	0.79085	0.79083	0.79081	0.79080	0.79078	0.79077	0.79075	0.79073	0.79072	153.80
153.90	0.79070	0.79069	0.79067	0.79065	0.79064	0.79062	0.79061	0.79059	0.79057	0.79056	153.90
154.00	0.79054	0.79053	0.79051	0.79049	0.79048	0.79046	0.79045	0.79043	0.79042	0.79040	154.00
154.10	0.79038	0.79037	0.79035	0.79034	0.79032	0.79030	0.79029	0.79027	0.79026	0.79024	154.10
154.20	0.79023	0.79021	0.79019	0.79018	0.79016	0.79015	0.79013	0.79011	0.79010	0.79008	154.20
154.30	0.79007	0.79005	0.79004	0.79002	0.79000	0.78999	0.78997	0.78996	0.78994	0.78993	154.30
154.40	0.78991	0.78990	0.78988	0.78986	0.78985	0.78983	0.78982	0.78980	0.78979	0.78977	154.40
154.50	0.78975	0.78974	0.78972	0.78971	0.78969	0.78968	0.78966	0.78965	0.78963	0.78961	154.50
154.60	0.78960	0.78958	0.78957	0.78955	0.78954	0.78952	0.78951	0.78949	0.78947	0.78946	154.60
154.70	0.78944	0.78943	0.78941	0.78940	0.78938	0.78937	0.78935	0.78934	0.78932	0.78931	154.70
154.80	0.78929	0.78927	0.78926	0.78924	0.78923	0.78921	0.78920	0.78918	0.78917	0.78915	154.80
154.90	0.78914	0.78912	0.78911	0.78909	0.78907	0.78906	0.78904	0.78903	0.78901	0.78900	154.90
155.00	0.78898	0.78897	0.78895	0.78894	0.78892	0.78891	0.78889	0.78888	0.78886	0.78885	155.00
155.10	0.78883	0.78882	0.78880	0.78879	0.78877	0.78875	0.78874	0.78872	0.78871	0.78869	155.10
155.20	0.78868	0.78866	0.78865	0.78863	0.78862	0.78860	0.78859	0.78857	0.78856	0.78854	155.20
155.30	0.78853	0.78851	0.78850	0.78848	0.78847	0.78845	0.78844	0.78842	0.78841	0.78839	155.30
155.40	0.78838	0.78836	0.78835	0.78833	0.78832	0.78830	0.78829	0.78827	0.78826	0.78824	155.40
155.50	0.78823	0.78821	0.78820	0.78818	0.78817	0.78815	0.78814	0.78812	0.78811	0.78809	155.50
155.60	0.78808	0.78806	0.78805	0.78803	0.78802	0.78800	0.78799	0.78798	0.78796	0.78795	155.60
155.70	0.78793	0.78792	0.78790	0.78789	0.78787	0.78786	0.78784	0.78783	0.78781	0.78780	155.70
155.80	0.78778	0.78777	0.78775	0.78774	0.78772	0.78771	0.78769	0.78768	0.78767	0.78765	155.80
155.90	0.78764	0.78762	0.78761	0.78759	0.78758	0.78756	0.78755	0.78753	0.78752	0.78750	155.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
156.00	0.78749	0.78747	0.78746	0.78745	0.78743	0.78742	0.78740	0.78739	0.78737	0.78736	156.00
156.10	0.78734	0.78733	0.78731	0.78730	0.78729	0.78727	0.78726	0.78724	0.78723	0.78721	156.10
156.20	0.78720	0.78718	0.78717	0.78716	0.78714	0.78713	0.78711	0.78710	0.78708	0.78707	156.20
156.30	0.78705	0.78704	0.78703	0.78701	0.78700	0.78698	0.78697	0.78695	0.78694	0.78692	156.30
156.40	0.78691	0.78690	0.78688	0.78687	0.78685	0.78684	0.78682	0.78681	0.78680	0.78678	156.40
156.50	0.78677	0.78675	0.78674	0.78672	0.78671	0.78670	0.78668	0.78667	0.78665	0.78664	156.50
156.60	0.78662	0.78661	0.78660	0.78658	0.78657	0.78655	0.78654	0.78653	0.78651	0.78650	156.60
156.70	0.78648	0.78647	0.78645	0.78644	0.78643	0.78641	0.78640	0.78638	0.78637	0.78636	156.70
156.80	0.78634	0.78633	0.78631	0.78630	0.78629	0.78627	0.78626	0.78624	0.78623	0.78622	156.80
156.90	0.78620	0.78619	0.78617	0.78616	0.78615	0.78613	0.78612	0.78610	0.78609	0.78608	156.90
157.00	0.78606	0.78605	0.78603	0.78602	0.78601	0.78599	0.78598	0.78596	0.78595	0.78594	157.00
157.10	0.78592	0.78591	0.78589	0.78588	0.78587	0.78585	0.78584	0.78583	0.78581	0.78580	157.10
157.20	0.78578	0.78577	0.78576	0.78574	0.78573	0.78571	0.78570	0.78569	0.78567	0.78566	157.20
157.30	0.78565	0.78563	0.78562	0.78560	0.78559	0.78558	0.78556	0.78555	0.78554	0.78552	157.30
157.40	0.78551	0.78549	0.78548	0.78547	0.78545	0.78544	0.78543	0.78541	0.78540	0.78539	157.40
157.50	0.78537	0.78536	0.78534	0.78533	0.78532	0.78530	0.78529	0.78528	0.78526	0.78525	157.50
157.60	0.78524	0.78522	0.78521	0.78520	0.78518	0.78517	0.78515	0.78514	0.78513	0.78511	157.60
157.70	0.78510	0.78509	0.78507	0.78506	0.78505	0.78503	0.78502	0.78501	0.78499	0.78498	157.70
157.80	0.78497	0.78495	0.78494	0.78493	0.78491	0.78490	0.78489	0.78487	0.78486	0.78484	157.80
157.90	0.78483	0.78482	0.78480	0.78479	0.78478	0.78476	0.78475	0.78474	0.78472	0.78471	157.90
158.00	0.78470	0.78468	0.78467	0.78466	0.78464	0.78463	0.78462	0.78461	0.78459	0.78458	158.00
158.10	0.78457	0.78455	0.78454	0.78453	0.78451	0.78450	0.78449	0.78447	0.78446	0.78445	158.10
158.20	0.78443	0.78442	0.78441	0.78439	0.78438	0.78437	0.78435	0.78434	0.78433	0.78431	158.20
158.30	0.78430	0.78429	0.78428	0.78426	0.78425	0.78424	0.78422	0.78421	0.78420	0.78418	158.30
158.40	0.78417	0.78416	0.78414	0.78413	0.78412	0.78411	0.78409	0.78408	0.78407	0.78405	158.40
158.50	0.78404	0.78403	0.78401	0.78400	0.78399	0.78398	0.78396	0.78395	0.78394	0.78392	158.50
158.60	0.78391	0.78390	0.78389	0.78387	0.78386	0.78385	0.78383	0.78382	0.78381	0.78379	158.60
158.70	0.78378	0.78377	0.78376	0.78374	0.78373	0.78372	0.78371	0.78369	0.78368	0.78367	158.70
158.80	0.78365	0.78364	0.78363	0.78362	0.78360	0.78359	0.78358	0.78356	0.78355	0.78354	158.80
158.90	0.78353	0.78351	0.78350	0.78349	0.78348	0.78346	0.78345	0.78344	0.78342	0.78341	158.90
159.00	0.78340	0.78339	0.78337	0.78336	0.78335	0.78334	0.78332	0.78331	0.78330	0.78329	159.00
159.10	0.78327	0.78326	0.78325	0.78323	0.78322	0.78321	0.78320	0.78318	0.78317	0.78316	159.10
159.20	0.78315	0.78313	0.78312	0.78311	0.78310	0.78308	0.78307	0.78306	0.78305	0.78303	159.20
159.30	0.78302	0.78301	0.78300	0.78298	0.78297	0.78296	0.78295	0.78293	0.78292	0.78291	159.30
159.40	0.78290	0.78288	0.78287	0.78286	0.78285	0.78284	0.78282	0.78281	0.78280	0.78279	159.40
159.50	0.78277	0.78276	0.78275	0.78274	0.78272	0.78271	0.78270	0.78269	0.78267	0.78266	159.50
159.60	0.78265	0.78264	0.78263	0.78261	0.78260	0.78259	0.78258	0.78256	0.78255	0.78254	159.60
159.70	0.78253	0.78252	0.78250	0.78249	0.78248	0.78247	0.78245	0.78244	0.78243	0.78242	159.70
159.80	0.78241	0.78239	0.78238	0.78237	0.78236	0.78235	0.78233	0.78232	0.78231	0.78230	159.80
159.90	0.78228	0.78227	0.78226	0.78225	0.78224	0.78222	0.78221	0.78220	0.78219	0.78218	159.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
160.00	0.78216	0.78215	0.78214	0.78213	0.78212	0.78210	0.78209	0.78208	0.78207	0.78206	160.00
160.10	0.78204	0.78203	0.78202	0.78201	0.78200	0.78198	0.78197	0.78196	0.78195	0.78194	160.10
160.20	0.78192	0.78191	0.78190	0.78189	0.78188	0.78186	0.78185	0.78184	0.78183	0.78182	160.20
160.30	0.78181	0.78179	0.78178	0.78177	0.78176	0.78175	0.78173	0.78172	0.78171	0.78170	160.30
160.40	0.78169	0.78168	0.78166	0.78165	0.78164	0.78163	0.78162	0.78161	0.78159	0.78158	160.40
160.50	0.78157	0.78156	0.78155	0.78153	0.78152	0.78151	0.78150	0.78149	0.78148	0.78146	160.50
160.60	0.78145	0.78144	0.78143	0.78142	0.78141	0.78139	0.78138	0.78137	0.78136	0.78135	160.60
160.70	0.78134	0.78133	0.78131	0.78130	0.78129	0.78128	0.78127	0.78126	0.78124	0.78123	160.70
160.80	0.78122	0.78121	0.78120	0.78119	0.78118	0.78116	0.78115	0.78114	0.78113	0.78112	160.80
160.90	0.78111	0.78109	0.78108	0.78107	0.78106	0.78105	0.78104	0.78103	0.78101	0.78100	160.90
161.00	0.78099	0.78098	0.78097	0.78096	0.78095	0.78093	0.78092	0.78091	0.78090	0.78089	161.00
161.10	0.78088	0.78087	0.78086	0.78084	0.78083	0.78082	0.78081	0.78080	0.78079	0.78078	161.10
161.20	0.78076	0.78075	0.78074	0.78073	0.78072	0.78071	0.78070	0.78069	0.78067	0.78066	161.20
161.30	0.78065	0.78064	0.78063	0.78062	0.78061	0.78060	0.78059	0.78057	0.78056	0.78055	161.30
161.40	0.78054	0.78053	0.78052	0.78051	0.78050	0.78048	0.78047	0.78046	0.78045	0.78044	161.40
161.50	0.78043	0.78042	0.78041	0.78040	0.78039	0.78037	0.78036	0.78035	0.78034	0.78033	161.50
161.60	0.78032	0.78031	0.78030	0.78029	0.78027	0.78026	0.78025	0.78024	0.78023	0.78022	161.60
161.70	0.78021	0.78020	0.78019	0.78018	0.78017	0.78015	0.78014	0.78013	0.78012	0.78011	161.70
161.80	0.78010	0.78009	0.78008	0.78007	0.78006	0.78005	0.78003	0.78002	0.78001	0.78000	161.80
161.90	0.77999	0.77998	0.77997	0.77996	0.77995	0.77994	0.77993	0.77992	0.77990	0.77989	161.90
162.00	0.77988	0.77987	0.77986	0.77985	0.77984	0.77983	0.77982	0.77981	0.77980	0.77979	162.00
162.10	0.77978	0.77976	0.77975	0.77974	0.77973	0.77972	0.77971	0.77970	0.77969	0.77968	162.10
162.20	0.77967	0.77966	0.77965	0.77964	0.77963	0.77962	0.77960	0.77959	0.77958	0.77957	162.20
162.30	0.77956	0.77955	0.77954	0.77953	0.77952	0.77951	0.77950	0.77949	0.77948	0.77947	162.30
162.40	0.77946	0.77945	0.77944	0.77942	0.77941	0.77940	0.77939	0.77938	0.77937	0.77936	162.40
162.50	0.77935	0.77934	0.77933	0.77932	0.77931	0.77930	0.77929	0.77928	0.77927	0.77926	162.50
162.60	0.77925	0.77924	0.77923	0.77922	0.77921	0.77920	0.77918	0.77917	0.77916	0.77915	162.60
162.70	0.77914	0.77913	0.77912	0.77911	0.77910	0.77909	0.77908	0.77907	0.77906	0.77905	162.70
162.80	0.77904	0.77903	0.77902	0.77901	0.77900	0.77899	0.77898	0.77897	0.77896	0.77895	162.80
162.90	0.77894	0.77893	0.77892	0.77891	0.77890	0.77889	0.77888	0.77887	0.77886	0.77885	162.90
163.00	0.77884	0.77883	0.77882	0.77881	0.77880	0.77879	0.77878	0.77876	0.77875	0.77874	163.00
163.10	0.77873	0.77872	0.77871	0.77870	0.77869	0.77868	0.77867	0.77866	0.77865	0.77864	163.10
163.20	0.77863	0.77862	0.77861	0.77860	0.77859	0.77858	0.77857	0.77856	0.77855	0.77854	163.20
163.30	0.77853	0.77852	0.77851	0.77850	0.77849	0.77848	0.77847	0.77846	0.77845	0.77844	163.30
163.40	0.77843	0.77842	0.77841	0.77840	0.77839	0.77839	0.77838	0.77837	0.77836	0.77835	163.40
163.50	0.77834	0.77833	0.77832	0.77831	0.77830	0.77829	0.77828	0.77827	0.77826	0.77825	163.50
163.60	0.77824	0.77823	0.77822	0.77821	0.77820	0.77819	0.77818	0.77817	0.77816	0.77815	163.60
163.70	0.77814	0.77813	0.77812	0.77811	0.77810	0.77809	0.77808	0.77807	0.77806	0.77805	163.70
163.80	0.77804	0.77803	0.77802	0.77801	0.77800	0.77799	0.77799	0.77798	0.77797	0.77796	163.80
163.90	0.77795	0.77794	0.77793	0.77792	0.77791	0.77790	0.77789	0.77788	0.77787	0.77786	163.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
164.00	0.77785	0.77784	0.77783	0.77782	0.77781	0.77780	0.77779	0.77778	0.77777	0.77777	164.00
164.10	0.77776	0.77775	0.77774	0.77773	0.77772	0.77771	0.77770	0.77769	0.77768	0.77767	164.10
164.20	0.77766	0.77765	0.77764	0.77763	0.77762	0.77761	0.77761	0.77760	0.77759	0.77758	164.20
164.30	0.77757	0.77756	0.77755	0.77754	0.77753	0.77752	0.77751	0.77750	0.77749	0.77748	164.30
164.40	0.77747	0.77747	0.77746	0.77745	0.77744	0.77743	0.77742	0.77741	0.77740	0.77739	164.40
164.50	0.77738	0.77737	0.77736	0.77735	0.77734	0.77734	0.77733	0.77732	0.77731	0.77730	164.50
164.60	0.77729	0.77728	0.77727	0.77726	0.77725	0.77724	0.77723	0.77723	0.77722	0.77721	164.60
164.70	0.77720	0.77719	0.77718	0.77717	0.77716	0.77715	0.77714	0.77713	0.77713	0.77712	164.70
164.80	0.77711	0.77710	0.77709	0.77708	0.77707	0.77706	0.77705	0.77704	0.77704	0.77703	164.80
164.90	0.77702	0.77701	0.77700	0.77699	0.77698	0.77697	0.77696	0.77695	0.77695	0.77694	164.90
165.00	0.77693	0.77692	0.77691	0.77690	0.77689	0.77688	0.77687	0.77687	0.77686	0.77685	165.00
165.10	0.77684	0.77683	0.77682	0.77681	0.77680	0.77679	0.77679	0.77678	0.77677	0.77676	165.10
165.20	0.77675	0.77674	0.77673	0.77672	0.77672	0.77671	0.77670	0.77669	0.77668	0.77667	165.20
165.30	0.77666	0.77665	0.77665	0.77664	0.77663	0.77662	0.77661	0.77660	0.77659	0.77658	165.30
165.40	0.77658	0.77657	0.77656	0.77655	0.77654	0.77653	0.77652	0.77651	0.77651	0.77650	165.40
165.50	0.77649	0.77648	0.77647	0.77646	0.77645	0.77645	0.77644	0.77643	0.77642	0.77641	165.50
165.60	0.77640	0.77639	0.77639	0.77638	0.77637	0.77636	0.77635	0.77634	0.77633	0.77633	165.60
165.70	0.77632	0.77631	0.77630	0.77629	0.77628	0.77628	0.77627	0.77626	0.77625	0.77624	165.70
165.80	0.77623	0.77622	0.77622	0.77621	0.77620	0.77619	0.77618	0.77617	0.77617	0.77616	165.80
165.90	0.77615	0.77614	0.77613	0.77612	0.77612	0.77611	0.77610	0.77609	0.77608	0.77607	165.90
166.00	0.77607	0.77606	0.77605	0.77604	0.77603	0.77602	0.77602	0.77601	0.77600	0.77599	166.00
166.10	0.77598	0.77597	0.77597	0.77596	0.77595	0.77594	0.77593	0.77593	0.77592	0.77591	166.10
166.20	0.77590	0.77589	0.77588	0.77588	0.77587	0.77586	0.77585	0.77584	0.77584	0.77583	166.20
166.30	0.77582	0.77581	0.77580	0.77579	0.77579	0.77578	0.77577	0.77576	0.77575	0.77575	166.30
166.40	0.77574	0.77573	0.77572	0.77571	0.77571	0.77570	0.77569	0.77568	0.77567	0.77567	166.40
166.50	0.77566	0.77565	0.77564	0.77563	0.77563	0.77562	0.77561	0.77560	0.77559	0.77559	166.50
166.60	0.77558	0.77557	0.77556	0.77555	0.77555	0.77554	0.77553	0.77552	0.77551	0.77551	166.60
166.70	0.77550	0.77549	0.77548	0.77547	0.77547	0.77546	0.77545	0.77544	0.77544	0.77543	166.70
166.80	0.77542	0.77541	0.77540	0.77540	0.77539	0.77538	0.77537	0.77537	0.77536	0.77535	166.80
166.90	0.77534	0.77533	0.77533	0.77532	0.77531	0.77530	0.77530	0.77529	0.77528	0.77527	166.90
167.00	0.77526	0.77526	0.77525	0.77524	0.77523	0.77523	0.77522	0.77521	0.77520	0.77520	167.00
167.10	0.77519	0.77518	0.77517	0.77516	0.77516	0.77515	0.77514	0.77513	0.77513	0.77512	167.10
167.20	0.77511	0.77510	0.77510	0.77509	0.77508	0.77507	0.77507	0.77506	0.77505	0.77504	167.20
167.30	0.77504	0.77503	0.77502	0.77501	0.77501	0.77500	0.77499	0.77498	0.77498	0.77497	167.30
167.40	0.77496	0.77495	0.77495	0.77494	0.77493	0.77492	0.77492	0.77491	0.77490	0.77489	167.40
167.50	0.77489	0.77488	0.77487	0.77486	0.77486	0.77485	0.77484	0.77483	0.77483	0.77482	167.50
167.60	0.77481	0.77481	0.77480	0.77479	0.77478	0.77478	0.77477	0.77476	0.77475	0.77475	167.60
167.70	0.77474	0.77473	0.77473	0.77472	0.77471	0.77470	0.77470	0.77469	0.77468	0.77467	167.70
167.80	0.77467	0.77466	0.77465	0.77465	0.77464	0.77463	0.77462	0.77462	0.77461	0.77460	167.80
167.90	0.77460	0.77459	0.77458	0.77457	0.77457	0.77456	0.77455	0.77455	0.77454	0.77453	167.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
168.00	0.77452	0.77452	0.77451	0.77450	0.77450	0.77449	0.77448	0.77447	0.77447	0.77446	168.00
168.10	0.77445	0.77445	0.77444	0.77443	0.77443	0.77442	0.77441	0.77440	0.77440	0.77439	168.10
168.20	0.77438	0.77438	0.77437	0.77436	0.77436	0.77435	0.77434	0.77433	0.77433	0.77432	168.20
168.30	0.77431	0.77431	0.77430	0.77429	0.77429	0.77428	0.77427	0.77427	0.77426	0.77425	168.30
168.40	0.77424	0.77424	0.77423	0.77422	0.77422	0.77421	0.77420	0.77420	0.77419	0.77418	168.40
168.50	0.77418	0.77417	0.77416	0.77416	0.77415	0.77414	0.77414	0.77413	0.77412	0.77412	168.50
168.60	0.77411	0.77410	0.77410	0.77409	0.77408	0.77407	0.77407	0.77406	0.77405	0.77405	168.60
168.70	0.77404	0.77403	0.77403	0.77402	0.77401	0.77401	0.77400	0.77399	0.77399	0.77398	168.70
168.80	0.77397	0.77397	0.77396	0.77396	0.77395	0.77394	0.77394	0.77393	0.77392	0.77392	168.80
168.90	0.77391	0.77390	0.77390	0.77389	0.77388	0.77388	0.77387	0.77386	0.77386	0.77385	168.90
169.00	0.77384	0.77384	0.77383	0.77382	0.77382	0.77381	0.77380	0.77380	0.77379	0.77379	169.00
169.10	0.77378	0.77377	0.77377	0.77376	0.77375	0.77375	0.77374	0.77373	0.77373	0.77372	169.10
169.20	0.77371	0.77371	0.77370	0.77370	0.77369	0.77368	0.77368	0.77367	0.77366	0.77366	169.20
169.30	0.77365	0.77364	0.77364	0.77363	0.77363	0.77362	0.77361	0.77361	0.77360	0.77359	169.30
169.40	0.77359	0.77358	0.77358	0.77357	0.77356	0.77356	0.77355	0.77354	0.77354	0.77353	169.40
169.50	0.77353	0.77352	0.77351	0.77351	0.77350	0.77350	0.77349	0.77348	0.77348	0.77347	169.50
169.60	0.77346	0.77346	0.77345	0.77345	0.77344	0.77343	0.77343	0.77342	0.77342	0.77341	169.60
169.70	0.77340	0.77340	0.77339	0.77338	0.77338	0.77337	0.77337	0.77336	0.77335	0.77335	169.70
169.80	0.77334	0.77334	0.77333	0.77332	0.77332	0.77331	0.77331	0.77330	0.77329	0.77329	169.80
169.90	0.77328	0.77328	0.77327	0.77326	0.77326	0.77325	0.77325	0.77324	0.77324	0.77323	169.90
170.00	0.77322	0.77322	0.77321	0.77321	0.77320	0.77319	0.77319	0.77318	0.77318	0.77317	170.00
170.10	0.77316	0.77316	0.77315	0.77315	0.77314	0.77314	0.77313	0.77312	0.77312	0.77311	170.10
170.20	0.77311	0.77310	0.77309	0.77309	0.77308	0.77308	0.77307	0.77307	0.77306	0.77305	170.20
170.30	0.77305	0.77304	0.77304	0.77303	0.77303	0.77302	0.77301	0.77301	0.77300	0.77300	170.30
170.40	0.77299	0.77299	0.77298	0.77298	0.77297	0.77296	0.77296	0.77295	0.77295	0.77294	170.40
170.50	0.77294	0.77293	0.77292	0.77292	0.77291	0.77291	0.77290	0.77290	0.77289	0.77289	170.50
170.60	0.77288	0.77287	0.77287	0.77286	0.77286	0.77285	0.77285	0.77284	0.77284	0.77283	170.60
170.70	0.77282	0.77282	0.77281	0.77281	0.77280	0.77280	0.77279	0.77279	0.77278	0.77278	170.70
170.80	0.77277	0.77276	0.77276	0.77275	0.77275	0.77274	0.77274	0.77273	0.77273	0.77272	170.80
170.90	0.77272	0.77271	0.77271	0.77270	0.77269	0.77269	0.77268	0.77268	0.77267	0.77267	170.90
171.00	0.77266	0.77266	0.77265	0.77265	0.77264	0.77264	0.77263	0.77263	0.77262	0.77262	171.00
171.10	0.77261	0.77260	0.77260	0.77259	0.77259	0.77258	0.77258	0.77257	0.77257	0.77256	171.10
171.20	0.77256	0.77255	0.77255	0.77254	0.77254	0.77253	0.77253	0.77252	0.77252	0.77251	171.20
171.30	0.77251	0.77250	0.77250	0.77249	0.77249	0.77248	0.77248	0.77247	0.77247	0.77246	171.30
171.40	0.77246	0.77245	0.77245	0.77244	0.77244	0.77243	0.77243	0.77242	0.77242	0.77241	171.40
171.50	0.77240	0.77240	0.77239	0.77239	0.77238	0.77238	0.77238	0.77237	0.77237	0.77236	171.50
171.60	0.77236	0.77235	0.77235	0.77234	0.77234	0.77233	0.77233	0.77232	0.77232	0.77231	171.60
171.70	0.77231	0.77230	0.77230	0.77229	0.77229	0.77228	0.77228	0.77227	0.77227	0.77226	171.70
171.80	0.77226	0.77225	0.77225	0.77224	0.77224	0.77223	0.77223	0.77222	0.77222	0.77221	171.80
171.90	0.77221	0.77220	0.77220	0.77220	0.77219	0.77219	0.77218	0.77218	0.77217	0.77217	171.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
172.00	0.77216	0.77216	0.77215	0.77215	0.77214	0.77214	0.77213	0.77213	0.77212	0.77212	172.00
172.10	0.77212	0.77211	0.77211	0.77210	0.77210	0.77209	0.77209	0.77208	0.77208	0.77207	172.10
172.20	0.77207	0.77206	0.77206	0.77206	0.77205	0.77205	0.77204	0.77204	0.77203	0.77203	172.20
172.30	0.77202	0.77202	0.77201	0.77201	0.77201	0.77200	0.77200	0.77199	0.77199	0.77198	172.30
172.40	0.77198	0.77197	0.77197	0.77196	0.77196	0.77196	0.77195	0.77195	0.77194	0.77194	172.40
172.50	0.77193	0.77193	0.77192	0.77192	0.77192	0.77191	0.77191	0.77190	0.77190	0.77189	172.50
172.60	0.77189	0.77189	0.77188	0.77188	0.77187	0.77187	0.77186	0.77186	0.77186	0.77185	172.60
172.70	0.77185	0.77184	0.77184	0.77183	0.77183	0.77183	0.77182	0.77182	0.77181	0.77181	172.70
172.80	0.77180	0.77180	0.77180	0.77179	0.77179	0.77178	0.77178	0.77177	0.77177	0.77177	172.80
172.90	0.77176	0.77176	0.77175	0.77175	0.77175	0.77174	0.77174	0.77173	0.77173	0.77172	172.90
173.00	0.77172	0.77172	0.77171	0.77171	0.77170	0.77170	0.77170	0.77169	0.77169	0.77168	173.00
173.10	0.77168	0.77168	0.77167	0.77167	0.77166	0.77166	0.77166	0.77165	0.77165	0.77164	173.10
173.20	0.77164	0.77164	0.77163	0.77163	0.77162	0.77162	0.77162	0.77161	0.77161	0.77160	173.20
173.30	0.77160	0.77160	0.77159	0.77159	0.77158	0.77158	0.77158	0.77157	0.77157	0.77156	173.30
173.40	0.77156	0.77156	0.77155	0.77155	0.77154	0.77154	0.77154	0.77153	0.77153	0.77153	173.40
173.50	0.77152	0.77152	0.77151	0.77151	0.77151	0.77150	0.77150	0.77150	0.77149	0.77149	173.50
173.60	0.77148	0.77148	0.77148	0.77147	0.77147	0.77147	0.77146	0.77146	0.77145	0.77145	173.60
173.70	0.77145	0.77144	0.77144	0.77144	0.77143	0.77143	0.77142	0.77142	0.77142	0.77141	173.70
173.80	0.77141	0.77141	0.77140	0.77140	0.77140	0.77139	0.77139	0.77138	0.77138	0.77138	173.80
173.90	0.77137	0.77137	0.77137	0.77136	0.77136	0.77136	0.77135	0.77135	0.77135	0.77134	173.90
174.00	0.77134	0.77133	0.77133	0.77133	0.77132	0.77132	0.77132	0.77131	0.77131	0.77131	174.00
174.10	0.77130	0.77130	0.77130	0.77129	0.77129	0.77129	0.77128	0.77128	0.77128	0.77127	174.10
174.20	0.77127	0.77127	0.77126	0.77126	0.77126	0.77125	0.77125	0.77124	0.77124	0.77124	174.20
174.30	0.77123	0.77123	0.77123	0.77122	0.77122	0.77122	0.77121	0.77121	0.77121	0.77121	174.30
174.40	0.77120	0.77120	0.77120	0.77119	0.77119	0.77119	0.77118	0.77118	0.77118	0.77117	174.40
174.50	0.77117	0.77117	0.77116	0.77116	0.77116	0.77115	0.77115	0.77115	0.77114	0.77114	174.50
174.60	0.77114	0.77113	0.77113	0.77113	0.77112	0.77112	0.77112	0.77111	0.77111	0.77111	174.60
174.70	0.77111	0.77110	0.77110	0.77110	0.77109	0.77109	0.77109	0.77108	0.77108	0.77108	174.70
174.80	0.77107	0.77107	0.77107	0.77107	0.77106	0.77106	0.77106	0.77105	0.77105	0.77105	174.80
174.90	0.77104	0.77104	0.77104	0.77104	0.77103	0.77103	0.77103	0.77102	0.77102	0.77102	174.90
175.00	0.77101	0.77101	0.77101	0.77101	0.77100	0.77100	0.77100	0.77099	0.77099	0.77099	175.00
175.10	0.77099	0.77098	0.77098	0.77098	0.77097	0.77097	0.77097	0.77097	0.77096	0.77096	175.10
175.20	0.77096	0.77095	0.77095	0.77095	0.77095	0.77094	0.77094	0.77094	0.77093	0.77093	175.20
175.30	0.77093	0.77093	0.77092	0.77092	0.77092	0.77092	0.77091	0.77091	0.77091	0.77090	175.30
175.40	0.77090	0.77090	0.77090	0.77089	0.77089	0.77089	0.77089	0.77088	0.77088	0.77088	175.40
175.50	0.77088	0.77087	0.77087	0.77087	0.77086	0.77086	0.77086	0.77086	0.77085	0.77085	175.50
175.60	0.77085	0.77085	0.77084	0.77084	0.77084	0.77084	0.77083	0.77083	0.77083	0.77083	175.60
175.70	0.77082	0.77082	0.77082	0.77082	0.77081	0.77081	0.77081	0.77081	0.77080	0.77080	175.70
175.80	0.77080	0.77080	0.77079	0.77079	0.77079	0.77079	0.77078	0.77078	0.77078	0.77078	175.80
175.90	0.77077	0.77077	0.77077	0.77077	0.77076	0.77076	0.77076	0.77076	0.77076	0.77075	175.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 1 Radiation (1.540562 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
176.00	0.77075	0.77075	0.77075	0.77074	0.77074	0.77074	0.77074	0.77073	0.77073	0.77073	176.00
176.10	0.77073	0.77073	0.77072	0.77072	0.77072	0.77072	0.77071	0.77071	0.77071	0.77071	176.10
176.20	0.77070	0.77070	0.77070	0.77070	0.77070	0.77069	0.77069	0.77069	0.77069	0.77068	176.20
176.30	0.77068	0.77068	0.77068	0.77068	0.77067	0.77067	0.77067	0.77067	0.77067	0.77066	176.30
176.40	0.77066	0.77066	0.77066	0.77065	0.77065	0.77065	0.77065	0.77065	0.77064	0.77064	176.40
176.50	0.77064	0.77064	0.77064	0.77063	0.77063	0.77063	0.77063	0.77063	0.77062	0.77062	176.50
176.60	0.77062	0.77062	0.77062	0.77061	0.77061	0.77061	0.77061	0.77061	0.77060	0.77060	176.60
176.70	0.77060	0.77060	0.77060	0.77059	0.77059	0.77059	0.77059	0.77059	0.77059	0.77058	176.70
176.80	0.77058	0.77058	0.77058	0.77058	0.77057	0.77057	0.77057	0.77057	0.77057	0.77056	176.80
176.90	0.77056	0.77056	0.77056	0.77056	0.77056	0.77055	0.77055	0.77055	0.77055	0.77055	176.90
177.00	0.77055	0.77054	0.77054	0.77054	0.77054	0.77054	0.77053	0.77053	0.77053	0.77053	177.00
177.10	0.77053	0.77053	0.77052	0.77052	0.77052	0.77052	0.77052	0.77052	0.77051	0.77051	177.10
177.20	0.77051	0.77051	0.77051	0.77051	0.77050	0.77050	0.77050	0.77050	0.77050	0.77050	177.20
177.30	0.77049	0.77049	0.77049	0.77049	0.77049	0.77049	0.77049	0.77048	0.77048	0.77048	177.30
177.40	0.77048	0.77048	0.77048	0.77047	0.77047	0.77047	0.77047	0.77047	0.77047	0.77047	177.40
177.50	0.77046	0.77046	0.77046	0.77046	0.77046	0.77046	0.77046	0.77045	0.77045	0.77045	177.50
177.60	0.77045	0.77045	0.77045	0.77045	0.77044	0.77044	0.77044	0.77044	0.77044	0.77044	177.60
177.70	0.77044	0.77043	0.77043	0.77043	0.77043	0.77043	0.77043	0.77043	0.77043	0.77042	177.70
177.80	0.77042	0.77042	0.77042	0.77042	0.77042	0.77042	0.77042	0.77041	0.77041	0.77041	177.80
177.90	0.77041	0.77041	0.77041	0.77041	0.77041	0.77040	0.77040	0.77040	0.77040	0.77040	177.90
178.00	0.77040	0.77040	0.77040	0.77039	0.77039	0.77039	0.77039	0.77039	0.77039	0.77039	178.00
178.10	0.77039	0.77039	0.77038	0.77038	0.77038	0.77038	0.77038	0.77038	0.77038	0.77038	178.10
178.20	0.77038	0.77037	0.77037	0.77037	0.77037	0.77037	0.77037	0.77037	0.77037	0.77037	178.20
178.30	0.77037	0.77036	0.77036	0.77036	0.77036	0.77036	0.77036	0.77036	0.77036	0.77036	178.30
178.40	0.77036	0.77036	0.77035	0.77035	0.77035	0.77035	0.77035	0.77035	0.77035	0.77035	178.40
178.50	0.77035	0.77035	0.77035	0.77034	0.77034	0.77034	0.77034	0.77034	0.77034	0.77034	178.50
178.60	0.77034	0.77034	0.77034	0.77034	0.77034	0.77033	0.77033	0.77033	0.77033	0.77033	178.60
178.70	0.77033	0.77033	0.77033	0.77033	0.77033	0.77033	0.77033	0.77033	0.77032	0.77032	178.70
178.80	0.77032	0.77032	0.77032	0.77032	0.77032	0.77032	0.77032	0.77032	0.77032	0.77032	178.80
178.90	0.77032	0.77032	0.77032	0.77031	0.77031	0.77031	0.77031	0.77031	0.77031	0.77031	178.90
179.00	0.77031	0.77031	0.77031	0.77031	0.77031	0.77031	0.77031	0.77031	0.77031	0.77031	179.00
179.10	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	179.10
179.20	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	0.77030	179.20
179.30	0.77030	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	179.30
179.40	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	179.40
179.50	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	0.77029	179.50
179.60	0.77029	0.77029	0.77029	0.77029	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	179.60
179.70	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	179.70
179.80	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	179.80
179.90	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	0.77028	179.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
0.00	0.00000	8848.70290	4424.35147	2949.56766	2212.17577	1769.74063	1474.78388	1264.10049	1106.08795	983.18931	0.00
0.10	884.87040	804.42766	737.39204	680.66960	632.05036	589.91369	553.04411	520.51213	491.59481	465.72142	0.10
0.20	442.43537	421.36704	402.21401	384.72647	368.69622	353.94840	340.33502	327.73004	316.02542	305.12801	0.20
0.30	294.95710	285.44238	276.52232	268.14288	260.25635	252.82048	245.79771	239.15455	232.86103	226.89026	0.30
0.40	221.21802	215.82248	210.68387	205.78427	201.10738	196.63835	192.36362	188.27080	184.34852	180.58632	0.40
0.50	176.97462	173.50455	170.16795	166.95725	163.86547	160.88612	158.01318	155.24104	152.56449	149.97868	0.50
0.60	147.47906	145.06139	142.72171	140.45631	138.26170	136.13462	134.07200	132.07094	130.12875	128.24285	0.60
0.70	126.41083	124.63042	122.89946	121.21593	119.57790	117.98355	116.43115	114.91908	113.44578	112.00978	0.70
0.80	110.60968	109.24416	107.91193	106.61181	105.34264	104.10334	102.89286	101.71021	100.55443	99.42463	0.80
0.90	98.31993	97.23952	96.18259	95.14839	94.13619	93.14531	92.17507	91.22483	90.29399	89.38195	0.90
1.00	88.48815	87.61205	86.75313	85.91089	85.08485	84.27454	83.47952	82.69936	81.93365	81.18198	1.00
1.10	80.44399	79.71929	79.00753	78.30837	77.62148	76.94653	76.28322	75.63125	74.99033	74.36018	1.10
1.20	73.74054	73.13113	72.53172	71.94206	71.36190	70.79103	70.22922	69.67625	69.13193	68.59604	1.20
1.30	68.06841	67.54882	67.03711	66.53309	66.03660	65.54746	65.06552	64.59061	64.12259	63.66129	1.30
1.40	63.20659	62.75834	62.31640	61.88065	61.45094	61.02717	60.60919	60.19691	59.79020	59.38894	1.40
1.50	58.99304	58.60238	58.21686	57.83638	57.46084	57.09015	56.72421	56.36293	56.00622	55.65401	1.50
1.60	55.30613	54.96270	54.62344	54.28835	53.95735	53.63036	53.30730	52.98812	52.67274	52.36109	1.60
1.70	52.05310	51.74872	51.44788	51.15051	50.85657	50.56598	50.27870	49.99466	49.71381	49.43610	1.70
1.80	49.16148	48.88989	48.62129	48.35562	48.09284	47.83290	47.57576	47.32137	47.06968	46.82066	1.80
1.90	46.57425	46.33043	46.08915	45.85037	45.61405	45.38015	45.14864	44.91949	44.69264	44.46808	1.90
2.00	44.24576	44.02568	43.80773	43.59195	43.37829	43.16671	42.95718	42.74968	42.54418	42.34064	2.00
2.10	42.13904	41.93935	41.74155	41.54560	41.35148	41.15917	40.96864	40.77987	40.59283	40.40750	2.10
2.20	40.22365	40.04186	39.86152	39.68279	39.50565	39.33010	39.15609	38.98362	38.81266	38.64320	2.20
2.30	38.47520	38.30867	38.14357	37.97988	37.81760	37.65669	37.49715	37.33896	37.18210	37.02655	2.30
2.40	36.87229	36.71932	36.56761	36.41714	36.26792	36.11991	35.97310	35.82748	35.68304	35.53976	2.40
2.50	35.39762	35.25662	35.11673	34.97795	34.84027	34.70366	34.56812	34.43364	34.30020	34.16779	2.50
2.60	34.03639	33.90601	33.77662	33.64821	33.52078	33.39431	33.26879	33.14421	33.02056	32.89783	2.60
2.70	32.77601	32.65508	32.53505	32.41590	32.29761	32.18019	32.06362	31.94789	31.83299	31.71891	2.70
2.80	31.60566	31.49320	31.38155	31.27068	31.16059	31.05128	30.94273	30.83494	30.72790	30.62160	2.80
2.90	30.51603	30.41118	30.30706	30.20364	30.10093	29.99892	29.89759	29.79695	29.69698	29.59768	2.90
3.00	29.49905	29.40108	29.30373	29.20704	29.11099	29.01557	28.92077	28.82658	28.73301	28.64005	3.00
3.10	28.54768	28.45591	28.36473	28.27413	28.18411	28.09466	28.00577	27.91745	27.82968	27.74246	3.10
3.20	27.65579	27.56966	27.48406	27.39899	27.31445	27.23043	27.14692	27.06393	26.98144	26.89945	3.20
3.30	26.81796	26.73696	26.65645	26.57642	26.49687	26.41780	26.33920	26.26106	26.18339	26.10618	3.30
3.40	26.02942	25.95311	25.87724	25.80182	25.72684	25.65229	25.57817	25.50448	25.43122	25.35837	3.40
3.50	25.28594	25.21392	25.14231	25.07111	25.00031	24.92991	24.85991	24.79029	24.72107	24.65223	3.50
3.60	24.58377	24.51570	24.44800	24.38067	24.31371	24.24712	24.18089	24.11503	24.04952	23.98437	3.60
3.70	23.91957	23.85512	23.79101	23.72725	23.66383	23.60075	23.53801	23.47560	23.41351	23.35176	3.70
3.80	23.29033	23.22922	23.16843	23.10796	23.04781	22.98797	22.92844	22.86921	22.81029	22.75168	3.80
3.90	22.69336	22.63535	22.57762	22.52020	22.46306	22.40622	22.34966	22.29338	22.23739	22.18168	3.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
4.00	22.12625	22.07110	22.01621	21.96161	21.90727	21.85320	21.79940	21.74586	21.69258	21.63956	4.00
4.10	21.58681	21.53431	21.48206	21.43007	21.37833	21.32684	21.27559	21.22460	21.17384	21.12333	4.10
4.20	21.07306	21.02303	20.97323	20.92367	20.87435	20.82525	20.77639	20.72775	20.67935	20.63117	4.20
4.30	20.58321	20.53547	20.48796	20.44067	20.39359	20.34673	20.30009	20.25366	20.20744	20.16143	4.30
4.40	20.11563	20.07004	20.02465	19.97947	19.93450	19.88972	19.84515	19.80078	19.75660	19.71262	4.40
4.50	19.66884	19.62525	19.58185	19.53865	19.49563	19.45281	19.41017	19.36772	19.32546	19.28338	4.50
4.60	19.24148	19.19976	19.15823	19.11687	19.07569	19.03469	18.99387	18.95322	18.91274	18.87244	4.60
4.70	18.83231	18.79235	18.75255	18.71293	18.67347	18.63418	18.59506	18.55610	18.51730	18.47866	4.70
4.80	18.44019	18.40187	18.36372	18.32572	18.28788	18.25020	18.21267	18.17529	18.13807	18.10100	4.80
4.90	18.06408	18.02731	17.99070	17.95423	17.91790	17.88173	17.84570	17.80981	17.77407	17.73848	4.90
5.00	17.70302	17.66771	17.63254	17.59751	17.56261	17.52786	17.49324	17.45876	17.42441	17.39020	5.00
5.10	17.35613	17.32218	17.28837	17.25470	17.22115	17.18773	17.15445	17.12129	17.08826	17.05535	5.10
5.20	17.02258	16.98993	16.95740	16.92500	16.89272	16.86057	16.82854	16.79663	16.76484	16.73317	5.20
5.30	16.70162	16.67019	16.63888	16.60768	16.57660	16.54564	16.51480	16.48406	16.45345	16.42294	5.30
5.40	16.39255	16.36228	16.33211	16.30205	16.27211	16.24227	16.21255	16.18293	16.15342	16.12402	5.40
5.50	16.09473	16.06554	16.03646	16.00748	15.97861	15.94984	15.92118	15.89262	15.86416	15.83580	5.50
5.60	15.80755	15.77939	15.75134	15.72338	15.69553	15.66777	15.64011	15.61255	15.58508	15.55772	5.60
5.70	15.53044	15.50327	15.47619	15.44920	15.42231	15.39551	15.36880	15.34219	15.31567	15.28924	5.70
5.80	15.26290	15.23665	15.21050	15.18443	15.15845	15.13256	15.10676	15.08105	15.05542	15.02988	5.80
5.90	15.00443	14.97906	14.95378	14.92859	14.90348	14.87845	14.85351	14.82865	14.80388	14.77919	5.90
6.00	14.75458	14.73005	14.70561	14.68124	14.65696	14.63275	14.60863	14.58458	14.56062	14.53673	6.00
6.10	14.51292	14.48919	14.46554	14.44197	14.41847	14.39504	14.37170	14.34843	14.32523	14.30211	6.10
6.20	14.27307	14.25610	14.23320	14.21037	14.18762	14.16495	14.14234	14.11981	14.09735	14.07496	6.20
6.30	14.05264	14.03039	14.00821	13.98611	13.96407	13.94210	13.92020	13.89837	13.87661	13.85491	6.30
6.40	13.83329	13.81173	13.79024	13.76882	13.74746	13.72617	13.70494	13.68378	13.66269	13.64166	6.40
6.50	13.62069	13.59979	13.57896	13.55818	13.53747	13.51683	13.49625	13.47573	13.45527	13.43407	6.50
6.60	13.41454	13.39427	13.37406	13.35391	13.33382	13.31379	13.29382	13.27392	13.25407	13.23428	6.60
6.70	13.21455	13.19488	13.17526	13.15571	13.13621	13.11677	13.09739	13.07807	13.05880	13.03959	6.70
6.80	13.02044	13.00134	12.98230	12.96332	12.94439	12.92551	12.90669	12.88793	12.86922	12.85056	6.80
6.90	12.83196	12.81341	12.79492	12.77648	12.75809	12.73976	12.72147	12.70324	12.68507	12.66694	6.90
7.00	12.64887	12.63085	12.61288	12.59496	12.57709	12.55927	12.54151	12.52379	12.50612	12.48851	7.00
7.10	12.47094	12.45342	12.43595	12.41853	12.40116	12.38384	12.36657	12.34934	12.33217	12.31504	7.10
7.20	12.29796	12.28092	12.26393	12.24699	12.23010	12.21325	12.19645	12.17970	12.16299	12.14633	7.20
7.30	12.12971	12.11314	12.09662	12.08014	12.06370	12.04731	12.03096	12.01466	11.99840	11.98219	7.30
7.40	11.96602	11.94990	11.93381	11.91777	11.90178	11.88582	11.86991	11.85405	11.83822	11.82244	7.40
7.50	11.80670	11.79100	11.77534	11.75973	11.74415	11.72862	11.71313	11.69768	11.68227	11.66690	7.50
7.60	11.65157	11.63628	11.62103	11.60583	11.59066	11.57553	11.56044	11.54539	11.53038	11.51541	7.60
7.70	11.50047	11.48558	11.47073	11.45591	11.44113	11.42639	11.41169	11.39702	11.38240	11.36781	7.70
7.80	11.35326	11.33874	11.32426	11.30982	11.29542	11.28105	11.26672	11.25243	11.23817	11.22395	7.80
7.90	11.20977	11.19562	11.18150	11.16743	11.15338	11.13938	11.12541	11.11147	11.09757	11.08370	7.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
8.00	11.06987	11.05607	11.04231	11.02858	11.01488	11.00122	10.98760	10.97400	10.96044	10.94692	8.00
8.10	10.93343	10.91997	10.90654	10.89315	10.87979	10.86646	10.85317	10.83991	10.82668	10.81348	8.10
8.20	10.80032	10.78718	10.77408	10.76101	10.74798	10.73497	10.72200	10.70906	10.69614	10.68326	8.20
8.30	10.67042	10.65760	10.64481	10.63205	10.61933	10.60663	10.59397	10.58133	10.56873	10.55615	8.30
8.40	10.54361	10.53110	10.51861	10.50616	10.49373	10.48133	10.46897	10.45663	10.44432	10.43204	8.40
8.50	10.41979	10.40757	10.39538	10.38321	10.37108	10.35897	10.34689	10.33484	10.32282	10.31082	8.50
8.60	10.29885	10.28692	10.27500	10.26312	10.25126	10.23944	10.22763	10.21586	10.20411	10.19239	8.60
8.70	10.18070	10.16903	10.15740	10.14578	10.13420	10.12264	10.11110	10.09960	10.08812	10.07666	8.70
8.80	10.06523	10.05383	10.04246	10.03111	10.01978	10.00848	9.99721	9.98596	9.97474	9.96354	8.80
8.90	9.95237	9.94122	9.93010	9.91900	9.90793	9.89688	9.88585	9.87486	9.86388	9.85293	8.90
9.00	9.84201	9.83111	9.82023	9.80938	9.79855	9.78774	9.77696	9.76621	9.75547	9.74476	9.00
9.10	9.73408	9.72341	9.71278	9.70216	9.69157	9.68100	9.67045	9.65993	9.64943	9.63895	9.10
9.20	9.62850	9.61806	9.60765	9.59727	9.58690	9.57656	9.56624	9.55595	9.54567	9.53542	9.20
9.30	9.52519	9.51498	9.50479	9.49463	9.48448	9.47436	9.46426	9.45418	9.44413	9.43409	9.30
9.40	9.42408	9.41409	9.40412	9.39417	9.38424	9.37433	9.36444	9.35458	9.34473	9.33491	9.40
9.50	9.32510	9.31532	9.30556	9.29581	9.28609	9.27639	9.26671	9.25705	9.24741	9.23779	9.50
9.60	9.22819	9.21861	9.20905	9.19951	9.18999	9.18049	9.17101	9.16154	9.15210	9.14268	9.60
9.70	9.13328	9.12389	9.11453	9.10518	9.09586	9.08655	9.07726	9.06800	9.05875	9.04952	9.70
9.80	9.04030	9.03111	9.02194	9.01278	9.00365	8.99453	8.98543	8.97635	8.96728	8.95824	9.80
9.90	8.94921	8.94020	8.93121	8.92224	8.91329	8.90435	8.89544	8.88654	8.87765	8.86879	9.90
10.00	8.85994	8.85112	8.84230	8.83351	8.82474	8.81598	8.80724	8.79851	8.78981	8.78112	10.00
10.10	8.77245	8.76379	8.75515	8.74653	8.73793	8.72934	8.72077	8.71222	8.70369	8.69517	10.10
10.20	8.68667	8.67818	8.66971	8.66126	8.65282	8.64440	8.63600	8.62761	8.61924	8.61089	10.20
10.30	8.60255	8.59423	8.58593	8.57764	8.56936	8.56111	8.55287	8.54464	8.53643	8.52824	10.30
10.40	8.52006	8.51190	8.50375	8.49562	8.48751	8.47941	8.47132	8.46325	8.45520	8.44716	10.40
10.50	8.43914	8.43113	8.42314	8.41516	8.40720	8.39926	8.39133	8.38341	8.37551	8.36762	10.50
10.60	8.35975	8.35189	8.34405	8.33622	8.32841	8.32061	8.31283	8.30506	8.29731	8.28957	10.60
10.70	8.28185	8.27414	8.26644	8.25876	8.25109	8.24344	8.23580	8.22817	8.22056	8.21297	10.70
10.80	8.20539	8.19782	8.19026	8.18272	8.17520	8.16769	8.16019	8.15270	8.14523	8.13777	10.80
10.90	8.13033	8.12290	8.11549	8.10808	8.10069	8.09332	8.08596	8.07861	8.07127	8.06395	10.90
11.00	8.05664	8.04935	8.04207	8.03480	8.02754	8.02030	8.01307	8.00585	7.99865	7.99146	11.00
11.10	7.98428	7.97712	7.96997	7.96283	7.95571	7.94859	7.94149	7.93441	7.92733	7.92027	11.10
11.20	7.91322	7.90618	7.89916	7.89215	7.88515	7.87816	7.87119	7.86423	7.85728	7.85034	11.20
11.30	7.84342	7.83650	7.82960	7.82272	7.81584	7.80898	7.80212	7.79528	7.78846	7.78164	11.30
11.40	7.77484	7.76805	7.76127	7.75450	7.74774	7.74100	7.73427	7.72755	7.72084	7.71414	11.40
11.50	7.70746	7.70078	7.69412	7.68747	7.68083	7.67420	7.66759	7.66098	7.65439	7.64781	11.50
11.60	7.64124	7.63468	7.62813	7.62159	7.61507	7.60855	7.60205	7.59556	7.58908	7.58261	11.60
11.70	7.57615	7.56970	7.56327	7.55684	7.55043	7.54402	7.53763	7.53125	7.52488	7.51852	11.70
11.80	7.51217	7.50583	7.49950	7.49319	7.48688	7.48059	7.47430	7.46803	7.46176	7.45551	11.80
11.90	7.44927	7.44303	7.43681	7.43060	7.42440	7.41821	7.41203	7.40586	7.39970	7.39355	11.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
12.00	7.38741	7.38129	7.37517	7.36906	7.36296	7.35687	7.35080	7.34473	7.33867	7.33262	12.00
12.10	7.32658	7.32056	7.31454	7.30653	7.30253	7.29655	7.29057	7.28460	7.27864	7.27269	12.10
12.20	7.26676	7.26083	7.25491	7.24900	7.24310	7.23721	7.23133	7.22546	7.21959	7.21374	12.20
12.30	7.20790	7.20207	7.19624	7.19043	7.18463	7.17883	7.17305	7.16727	7.16150	7.15574	12.30
12.40	7.15000	7.14426	7.13853	7.13281	7.12710	7.12139	7.11570	7.11002	7.10434	7.09868	12.40
12.50	7.09302	7.08737	7.08174	7.07611	7.07049	7.06487	7.05927	7.05368	7.04809	7.04252	12.50
12.60	7.03695	7.03139	7.02584	7.02030	7.01477	7.00925	7.00374	6.99823	6.99273	6.98725	12.60
12.70	6.98177	6.97630	6.97083	6.96538	6.95994	6.95450	6.94907	6.94365	6.93824	6.93284	12.70
12.80	6.92745	6.92206	6.91668	6.91132	6.90596	6.90060	6.89526	6.88992	6.88460	6.87928	12.80
12.90	6.87397	6.86867	6.86337	6.85809	6.85281	6.84754	6.84228	6.83703	6.83178	6.82655	12.90
13.00	6.82132	6.81610	6.81088	6.80568	6.80048	6.79529	6.79011	6.78494	6.77978	6.77462	13.00
13.10	6.76947	6.76433	6.75920	6.75407	6.74895	6.74384	6.73874	6.73365	6.72856	6.72348	13.10
13.20	6.71841	6.71335	6.70829	6.70324	6.69820	6.69317	6.68815	6.68313	6.67812	6.67312	13.20
13.30	6.66812	6.66313	6.65815	6.65318	6.64822	6.64326	6.63831	6.63337	6.62843	6.62350	13.30
13.40	6.61858	6.61367	6.60876	6.60387	6.59898	6.59409	6.58921	6.58435	6.57948	6.57463	13.40
13.50	6.56978	6.56494	6.56011	6.55528	6.55046	6.54565	6.54085	6.53605	6.53126	6.52647	13.50
13.60	6.52170	6.51693	6.51217	6.50741	6.50266	6.49792	6.49319	6.48846	6.48374	6.47903	13.60
13.70	6.47432	6.46962	6.46493	6.46024	6.45556	6.45089	6.44622	6.44156	6.43691	6.43227	13.70
13.80	6.42763	6.42300	6.41837	6.41375	6.40914	6.40454	6.39994	6.39535	6.39076	6.38618	13.80
13.90	6.38161	6.37705	6.37249	6.36794	6.36339	6.35885	6.35432	6.34979	6.34527	6.34076	13.90
14.00	6.33625	6.33175	6.32726	6.32277	6.31829	6.31382	6.30935	6.30489	6.30043	6.29598	14.00
14.10	6.29154	6.28710	6.28267	6.27825	6.27383	6.26942	6.26502	6.26062	6.25622	6.25184	14.10
14.20	6.24746	6.24308	6.23872	6.23435	6.23000	6.22565	6.22131	6.21697	6.21264	6.20831	14.20
14.30	6.20399	6.19968	6.19537	6.19107	6.18678	6.18249	6.17821	6.17393	6.16966	6.16539	14.30
14.40	6.16114	6.15688	6.15264	6.14839	6.14416	6.13993	6.13571	6.13149	6.12728	6.12307	14.40
14.50	6.11887	6.11467	6.11049	6.10630	6.10213	6.09795	6.09379	6.08963	6.08548	6.08133	14.50
14.60	6.07718	6.07305	6.06892	6.06479	6.06067	6.05656	6.05245	6.04834	6.04425	6.04015	14.60
14.70	6.03607	6.03199	6.02791	6.02384	6.01978	6.01572	6.01167	6.00762	6.00358	5.99954	14.70
14.80	5.99551	5.99148	5.98746	5.98345	5.97944	5.97543	5.97143	5.96744	5.96345	5.95947	14.80
14.90	5.95549	5.95152	5.94756	5.94359	5.93964	5.93569	5.93174	5.92780	5.92387	5.91994	14.90
15.00	5.91602	5.91210	5.90818	5.90427	5.90037	5.89647	5.89258	5.88869	5.88481	5.88093	15.00
15.10	5.87706	5.87319	5.86933	5.86548	5.86162	5.85778	5.85394	5.85010	5.84627	5.84244	15.10
15.20	5.83862	5.83481	5.83099	5.82719	5.82339	5.81959	5.81580	5.81201	5.80823	5.80446	15.20
15.30	5.80069	5.79692	5.79316	5.78940	5.78565	5.78190	5.77816	5.77442	5.77069	5.76697	15.30
15.40	5.76324	5.75953	5.75581	5.75211	5.74840	5.74470	5.74101	5.73732	5.73364	5.72996	15.40
15.50	5.72629	5.72262	5.71895	5.71529	5.71164	5.70799	5.70434	5.70070	5.69706	5.69343	15.50
15.60	5.68980	5.68618	5.68256	5.67895	5.67534	5.67174	5.66814	5.66454	5.66095	5.65737	15.60
15.70	5.65379	5.65021	5.64664	5.64307	5.63951	5.63595	5.63240	5.62885	5.62531	5.62177	15.70
15.80	5.61823	5.61470	5.61117	5.60765	5.60413	5.60062	5.59711	5.59361	5.59011	5.58661	15.80
15.90	5.58312	5.57963	5.57615	5.57267	5.56920	5.56573	5.56227	5.55881	5.55535	5.55190	15.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
16.00	5.54845	5.54501	5.54157	5.53813	5.53470	5.53128	5.52786	5.52444	5.52103	5.51762	16.00
16.10	5.51421	5.51081	5.50742	5.50402	5.50064	5.49725	5.49387	5.49050	5.48713	5.48376	16.10
16.20	5.48040	5.47704	5.47369	5.47034	5.46699	5.46365	5.46031	5.45698	5.45365	5.45032	16.20
16.30	5.44700	5.44369	5.44037	5.43706	5.43376	5.43046	5.42716	5.42387	5.42058	5.41729	16.30
16.40	5.41401	5.41074	5.40746	5.40420	5.40093	5.39767	5.39441	5.39116	5.38791	5.38467	16.40
16.50	5.38143	5.37819	5.37496	5.37173	5.36850	5.36528	5.36206	5.35885	5.35564	5.35244	16.50
16.60	5.34923	5.34604	5.34284	5.33965	5.33646	5.33328	5.33010	5.32693	5.32376	5.32059	16.60
16.70	5.31743	5.31427	5.31111	5.30796	5.30481	5.30167	5.29853	5.29539	5.29226	5.28913	16.70
16.80	5.28600	5.28288	5.27976	5.27665	5.27354	5.27043	5.26732	5.26422	5.26113	5.25804	16.80
16.90	5.25495	5.25186	5.24878	5.24570	5.24263	5.23956	5.23649	5.23343	5.23037	5.22731	16.90
17.00	5.22426	5.22121	5.21817	5.21513	5.21209	5.20905	5.20602	5.20300	5.19997	5.19695	17.00
17.10	5.19394	5.19092	5.18791	5.18491	5.18190	5.17891	5.17591	5.17292	5.16993	5.16694	17.10
17.20	5.16396	5.16099	5.15801	5.15504	5.15207	5.14911	5.14615	5.14319	5.14024	5.13729	17.20
17.30	5.13434	5.13140	5.12846	5.12552	5.12259	5.11966	5.11673	5.11381	5.11089	5.10797	17.30
17.40	5.10506	5.10215	5.09924	5.09634	5.09344	5.09054	5.08765	5.08476	5.08187	5.07899	17.40
17.50	5.07611	5.07323	5.07036	5.06749	5.06462	5.06176	5.05890	5.05604	5.05319	5.05034	17.50
17.60	5.04749	5.04465	5.04181	5.03897	5.03614	5.03331	5.03048	5.02766	5.02483	5.02202	17.60
17.70	5.01920	5.01639	5.01358	5.01078	5.00797	5.00518	5.00238	4.99959	4.99680	4.99401	17.70
17.80	4.99123	4.98845	4.98567	4.98290	4.98013	4.97736	4.97460	4.97184	4.96908	4.96632	17.80
17.90	4.96357	4.96082	4.95808	4.95533	4.95259	4.94986	4.94712	4.94439	4.94167	4.93894	17.90
18.00	4.93622	4.93350	4.93079	4.92807	4.92537	4.92266	4.91996	4.91726	4.91456	4.91186	18.00
18.10	4.90917	4.90649	4.90380	4.90112	4.89844	4.89576	4.89309	4.89042	4.88775	4.88509	18.10
18.20	4.88243	4.87977	4.87711	4.87446	4.87181	4.86916	4.86652	4.86388	4.86124	4.85860	18.20
18.30	4.85597	4.85334	4.85071	4.84809	4.84547	4.84285	4.84024	4.83762	4.83502	4.83241	18.30
18.40	4.82981	4.82720	4.82461	4.82201	4.81942	4.81683	4.81424	4.81166	4.80908	4.80650	18.40
18.50	4.80392	4.80135	4.79878	4.79621	4.79365	4.79109	4.78853	4.78597	4.78342	4.78087	18.50
18.60	4.77832	4.77578	4.77323	4.77069	4.76816	4.76562	4.76309	4.76056	4.75804	4.75551	18.60
18.70	4.75299	4.75048	4.74796	4.74545	4.74294	4.74043	4.73793	4.73543	4.73293	4.73043	18.70
18.80	4.72794	4.72545	4.72296	4.72047	4.71799	4.71551	4.71303	4.71056	4.70808	4.70561	18.80
18.90	4.70315	4.70068	4.69822	4.69576	4.69331	4.69085	4.68840	4.68595	4.68350	4.68106	18.90
19.00	4.67862	4.67618	4.67375	4.67131	4.66888	4.66645	4.66403	4.66160	4.65918	4.65677	19.00
19.10	4.65435	4.65194	4.64953	4.64712	4.64471	4.64231	4.63991	4.63751	4.63512	4.63272	19.10
19.20	4.63033	4.62795	4.62556	4.62318	4.62080	4.61842	4.61604	4.61367	4.61130	4.60893	19.20
19.30	4.60657	4.60421	4.60184	4.59949	4.59713	4.59478	4.59243	4.59008	4.58773	4.58539	19.30
19.40	4.58305	4.58071	4.57837	4.57604	4.57371	4.57138	4.56905	4.56673	4.56441	4.56209	19.40
19.50	4.55977	4.55746	4.55514	4.55283	4.55053	4.54822	4.54592	4.54362	4.54132	4.53903	19.50
19.60	4.53673	4.53444	4.53215	4.52987	4.52758	4.52530	4.52302	4.52075	4.51847	4.51620	19.60
19.70	4.51393	4.51166	4.50940	4.50713	4.50487	4.50261	4.50036	4.49810	4.49585	4.49360	19.70
19.80	4.49136	4.48911	4.48687	4.48463	4.48239	4.48016	4.47792	4.47569	4.47346	4.47124	19.80
19.90	4.46901	4.46679	4.46457	4.46235	4.46014	4.45793	4.45571	4.45351	4.45130	4.44910	19.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
20.00	4.44689	4.44469	4.44250	4.44030	4.43811	4.43592	4.43373	4.43154	4.42936	4.42718	20.00
20.10	4.42500	4.42282	4.42064	4.41847	4.41630	4.41413	4.41196	4.40980	4.40763	4.40547	20.10
20.20	4.40332	4.40116	4.39901	4.39685	4.39470	4.39256	4.39041	4.38827	4.38613	4.38399	20.20
20.30	4.38185	4.37972	4.37758	4.37545	4.37332	4.37120	4.36907	4.36695	4.36483	4.36271	20.30
20.40	4.36060	4.35848	4.35637	4.35426	4.35215	4.35005	4.34794	4.34584	4.34374	4.34165	20.40
20.50	4.33955	4.33746	4.33537	4.33328	4.33119	4.32910	4.32702	4.32494	4.32286	4.32079	20.50
20.60	4.31871	4.31664	4.31457	4.31250	4.31043	4.30837	4.30630	4.30424	4.30218	4.30013	20.60
20.70	4.29807	4.29602	4.29397	4.29192	4.28987	4.28783	4.28579	4.28375	4.28171	4.27967	20.70
20.80	4.27763	4.27560	4.27357	4.27154	4.26951	4.26749	4.26547	4.26345	4.26143	4.25941	20.80
20.90	4.25739	4.25538	4.25337	4.25136	4.24935	4.24735	4.24534	4.24334	4.24134	4.23934	20.90
21.00	4.23735	4.23535	4.23336	4.23137	4.22938	4.22739	4.22541	4.22343	4.22145	4.21947	21.00
21.10	4.21749	4.21551	4.21354	4.21157	4.20960	4.20763	4.20567	4.20370	4.20174	4.19978	21.10
21.20	4.19782	4.19587	4.19391	4.19196	4.19001	4.18806	4.18611	4.18416	4.18222	4.18028	21.20
21.30	4.17834	4.17640	4.17447	4.17253	4.17060	4.16867	4.16674	4.16481	4.16289	4.16096	21.30
21.40	4.15904	4.15712	4.15520	4.15329	4.15137	4.14946	4.14755	4.14564	4.14373	4.14183	21.40
21.50	4.13992	4.13802	4.13612	4.13422	4.13232	4.13043	4.12854	4.12665	4.12476	4.12287	21.50
21.60	4.12098	4.11910	4.11721	4.11533	4.11346	4.11158	4.10970	4.10783	4.10596	4.10409	21.60
21.70	4.10222	4.10035	4.09849	4.09662	4.09476	4.09290	4.09104	4.08919	4.08733	4.08548	21.70
21.80	4.08363	4.08178	4.07993	4.07808	4.07624	4.07439	4.07255	4.07071	4.06888	4.06704	21.80
21.90	4.06520	4.06337	4.06154	4.05971	4.05788	4.05606	4.05423	4.05241	4.05059	4.04877	21.90
22.00	4.04695	4.04514	4.04332	4.04151	4.03970	4.03789	4.03608	4.03428	4.03247	4.03067	22.00
22.10	4.02887	4.02707	4.02527	4.02347	4.02168	4.01989	4.01809	4.01630	4.01452	4.01273	22.10
22.20	4.01094	4.00916	4.00738	4.00560	4.00382	4.00204	4.00027	3.99850	3.99672	3.99495	22.20
22.30	3.99318	3.99142	3.98965	3.98789	3.98613	3.98436	3.98261	3.98085	3.97909	3.97734	22.30
22.40	3.97558	3.97383	3.97208	3.97033	3.96859	3.96684	3.96510	3.96336	3.96162	3.95988	22.40
22.50	3.95814	3.95641	3.95467	3.95294	3.95121	3.94948	3.94775	3.94602	3.94430	3.94258	22.50
22.60	3.94085	3.93913	3.93741	3.93570	3.93398	3.93227	3.93055	3.92884	3.92713	3.92543	22.60
22.70	3.92372	3.92201	3.92031	3.91861	3.91691	3.91521	3.91351	3.91181	3.91012	3.90843	22.70
22.80	3.90674	3.90505	3.90336	3.90167	3.89998	3.89830	3.89662	3.89494	3.89326	3.89158	22.80
22.90	3.88990	3.88823	3.88655	3.88488	3.88321	3.88154	3.87987	3.87821	3.87654	3.87488	22.90
23.00	3.87322	3.87156	3.86990	3.86824	3.86658	3.86493	3.86327	3.86162	3.85997	3.85832	23.00
23.10	3.85667	3.85503	3.85338	3.85174	3.85010	3.84846	3.84682	3.84518	3.84355	3.84191	23.10
23.20	3.84028	3.83865	3.83702	3.83539	3.83376	3.83213	3.83051	3.82888	3.82726	3.82564	23.20
23.30	3.82402	3.82240	3.82079	3.81917	3.81756	3.81595	3.81434	3.81273	3.81112	3.80951	23.30
23.40	3.80791	3.80630	3.80470	3.80310	3.80150	3.79990	3.79830	3.79671	3.79511	3.79352	23.40
23.50	3.79193	3.79034	3.78875	3.78716	3.78558	3.78399	3.78241	3.78083	3.77924	3.77767	23.50
23.60	3.77609	3.77451	3.77294	3.77136	3.76979	3.76822	3.76665	3.76508	3.76351	3.76195	23.60
23.70	3.76038	3.75882	3.75726	3.75570	3.75414	3.75258	3.75102	3.74947	3.74791	3.74636	23.70
23.80	3.74481	3.74326	3.74171	3.74016	3.73862	3.73707	3.73553	3.73398	3.73244	3.73090	23.80
23.90	3.72937	3.72783	3.72629	3.72476	3.72322	3.72169	3.72016	3.71863	3.71711	3.71558	23.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
24.00	3.71405	3.71253	3.71101	3.70948	3.70796	3.70644	3.70493	3.70341	3.70190	3.70038	24.00
24.10	3.69887	3.69736	3.69585	3.69434	3.69283	3.69132	3.68982	3.68831	3.68681	3.68531	24.10
24.20	3.68381	3.68231	3.68081	3.67932	3.67782	3.67633	3.67484	3.67334	3.67185	3.67036	24.20
24.30	3.66888	3.66739	3.66591	3.66442	3.66294	3.66146	3.65998	3.65850	3.65702	3.65554	24.30
24.40	3.65407	3.65259	3.65112	3.64965	3.64818	3.64671	3.64524	3.64377	3.64231	3.64084	24.40
24.50	3.63938	3.63792	3.63646	3.63500	3.63354	3.63208	3.63062	3.62917	3.62772	3.62626	24.50
24.60	3.62481	3.62336	3.62191	3.62046	3.61902	3.61757	3.61613	3.61469	3.61324	3.61180	24.60
24.70	3.61036	3.60892	3.60749	3.60605	3.60462	3.60318	3.60175	3.60032	3.59889	3.59746	24.70
24.80	3.59603	3.59460	3.59318	3.59175	3.59033	3.58891	3.58749	3.58607	3.58465	3.58323	24.80
24.90	3.58182	3.58040	3.57899	3.57757	3.57616	3.57475	3.57334	3.57193	3.57053	3.56912	24.90
25.00	3.56772	3.56631	3.56491	3.56351	3.56211	3.56071	3.55931	3.55791	3.55652	3.55512	25.00
25.10	3.55373	3.55234	3.55094	3.54955	3.54816	3.54678	3.54539	3.54400	3.54262	3.54124	25.10
25.20	3.53985	3.53847	3.53709	3.53571	3.53433	3.53296	3.53158	3.53021	3.52883	3.52746	25.20
25.30	3.52609	3.52472	3.52335	3.52198	3.52061	3.51925	3.51788	3.51652	3.51516	3.51379	25.30
25.40	3.51243	3.51107	3.50971	3.50836	3.50700	3.50565	3.50429	3.50294	3.50159	3.50024	25.40
25.50	3.49889	3.49754	3.49619	3.49484	3.49350	3.49215	3.49081	3.48947	3.48812	3.48678	25.50
25.60	3.48544	3.48411	3.48277	3.48143	3.48010	3.47876	3.47743	3.47610	3.47477	3.47344	25.60
25.70	3.47211	3.47078	3.46945	3.46813	3.46680	3.46548	3.46416	3.46284	3.46152	3.46020	25.70
25.80	3.45888	3.45756	3.45624	3.45493	3.45361	3.45230	3.45099	3.44968	3.44837	3.44706	25.80
25.90	3.44575	3.44444	3.44314	3.44183	3.44053	3.43922	3.43792	3.43662	3.43532	3.43402	25.90
26.00	3.43272	3.43143	3.43013	3.42884	3.42754	3.42625	3.42496	3.42367	3.42238	3.42109	26.00
26.10	3.41980	3.41851	3.41723	3.41594	3.41466	3.41337	3.41209	3.41081	3.40953	3.40825	26.10
26.20	3.40697	3.40570	3.40442	3.40315	3.40187	3.40060	3.39933	3.39805	3.39678	3.39551	26.20
26.30	3.39425	3.39298	3.39171	3.39045	3.38918	3.38792	3.38666	3.38540	3.38413	3.38287	26.30
26.40	3.38162	3.38036	3.37910	3.37785	3.37659	3.37534	3.37408	3.37283	3.37158	3.37033	26.40
26.50	3.36908	3.36783	3.36659	3.36534	3.36410	3.36285	3.36161	3.36037	3.35912	3.35788	26.50
26.60	3.35664	3.35541	3.35417	3.35293	3.35169	3.35046	3.34923	3.34799	3.34676	3.34553	26.60
26.70	3.34430	3.34307	3.34184	3.34061	3.33939	3.33816	3.33694	3.33571	3.33449	3.33327	26.70
26.80	3.33205	3.33083	3.32961	3.32839	3.32717	3.32596	3.32474	3.32353	3.32231	3.32110	26.80
26.90	3.31989	3.31868	3.31747	3.31626	3.31505	3.31384	3.31264	3.31143	3.31023	3.30902	26.90
27.00	3.30782	3.30662	3.30542	3.30422	3.30302	3.30182	3.30062	3.29942	3.29823	3.29703	27.00
27.10	3.29584	3.29465	3.29346	3.29226	3.29107	3.28988	3.28870	3.28751	3.28632	3.28514	27.10
27.20	3.28395	3.28277	3.28158	3.28040	3.27922	3.27804	3.27686	3.27568	3.27450	3.27332	27.20
27.30	3.27215	3.27097	3.26980	3.26862	3.26745	3.26628	3.26511	3.26394	3.26277	3.26160	27.30
27.40	3.26043	3.25927	3.25810	3.25694	3.25577	3.25461	3.25345	3.25228	3.25112	3.24996	27.40
27.50	3.24880	3.24765	3.24649	3.24533	3.24418	3.24302	3.24187	3.24071	3.23956	3.23841	27.50
27.60	3.23726	3.23611	3.23496	3.23381	3.23267	3.23152	3.23037	3.22923	3.22809	3.22694	27.60
27.70	3.22580	3.22466	3.22352	3.22238	3.22124	3.22010	3.21897	3.21783	3.21669	3.21556	27.70
27.80	3.21442	3.21329	3.21216	3.21103	3.20990	3.20877	3.20764	3.20651	3.20538	3.20426	27.80
27.90	3.20313	3.20201	3.20088	3.19976	3.19864	3.19751	3.19639	3.19527	3.19415	3.19304	27.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
28.00	3.19192	3.19080	3.18969	3.18857	3.18746	3.18634	3.18523	3.18412	3.18301	3.18190	28.00
28.10	3.18079	3.17968	3.17857	3.17746	3.17636	3.17525	3.17415	3.17304	3.17194	3.17084	28.10
28.20	3.16973	3.16863	3.16753	3.16643	3.16534	3.16424	3.16314	3.16205	3.16095	3.15986	28.20
28.30	3.15876	3.15767	3.15658	3.15549	3.15439	3.15330	3.15222	3.15113	3.15004	3.14895	28.30
28.40	3.14787	3.14678	3.14570	3.14461	3.14353	3.14245	3.14137	3.14029	3.13921	3.13813	28.40
28.50	3.13705	3.13597	3.13489	3.13382	3.13274	3.13167	3.13060	3.12952	3.12845	3.12738	28.50
28.60	3.12631	3.12524	3.12417	3.12310	3.12203	3.12097	3.11990	3.11883	3.11777	3.11671	28.60
28.70	3.11564	3.11458	3.11352	3.11246	3.11140	3.11034	3.10928	3.10822	3.10716	3.10611	28.70
28.80	3.10505	3.10400	3.10294	3.10189	3.10084	3.09978	3.09873	3.09768	3.09663	3.09558	28.80
28.90	3.09454	3.09349	3.09244	3.09139	3.09035	3.08930	3.08826	3.08722	3.08617	3.08513	28.90
29.00	3.08409	3.08305	3.08201	3.08097	3.07994	3.07890	3.07786	3.07683	3.07579	3.07476	29.00
29.10	3.07372	3.07269	3.07166	3.07062	3.06959	3.06856	3.06753	3.06650	3.06548	3.06445	29.10
29.20	3.06342	3.06240	3.06137	3.06035	3.05932	3.05830	3.05728	3.05626	3.05523	3.05421	29.20
29.30	3.05320	3.05218	3.05116	3.05014	3.04912	3.04811	3.04709	3.04608	3.04506	3.04405	29.30
29.40	3.04304	3.04203	3.04101	3.04000	3.03899	3.03799	3.03698	3.03597	3.03496	3.03396	29.40
29.50	3.03295	3.03195	3.03094	3.02994	3.02893	3.02793	3.02693	3.02593	3.02493	3.02393	29.50
29.60	3.02293	3.02193	3.02094	3.01994	3.01894	3.01795	3.01695	3.01596	3.01497	3.01397	29.60
29.70	3.01298	3.01199	3.01100	3.01001	3.00902	3.00803	3.00704	3.00606	3.00507	3.00408	29.70
29.80	3.00310	3.00211	3.00113	3.00015	2.99916	2.99818	2.99720	2.99622	2.99524	2.99426	29.80
29.90	2.99328	2.99230	2.99133	2.99035	2.98937	2.98840	2.98742	2.98645	2.98548	2.98450	29.90
30.00	2.98353	2.98256	2.98159	2.98062	2.97965	2.97868	2.97771	2.97675	2.97578	2.97481	30.00
30.10	2.97385	2.97288	2.97192	2.97096	2.96999	2.96903	2.96807	2.96711	2.96615	2.96519	30.10
30.20	2.96423	2.96327	2.96231	2.96136	2.96040	2.95944	2.95849	2.95753	2.95658	2.95563	30.20
30.30	2.95467	2.95372	2.95277	2.95182	2.95087	2.94992	2.94897	2.94802	2.94708	2.94613	30.30
30.40	2.94518	2.94424	2.94329	2.94235	2.94140	2.94046	2.93952	2.93858	2.93763	2.93669	30.40
30.50	2.93575	2.93481	2.93388	2.93294	2.93200	2.93106	2.93013	2.92919	2.92826	2.92732	30.50
30.60	2.92639	2.92546	2.92452	2.92359	2.92266	2.92173	2.92080	2.91987	2.91894	2.91801	30.60
30.70	2.91708	2.91616	2.91523	2.91430	2.91338	2.91246	2.91153	2.91061	2.90968	2.90876	30.70
30.80	2.90784	2.90692	2.90600	2.90508	2.90416	2.90324	2.90232	2.90141	2.90049	2.89957	30.80
30.90	2.89866	2.89774	2.89683	2.89592	2.89500	2.89409	2.89318	2.89227	2.89136	2.89045	30.90
31.00	2.88954	2.88863	2.88772	2.88681	2.88590	2.88500	2.88409	2.88319	2.88228	2.88138	31.00
31.10	2.88047	2.87957	2.87867	2.87777	2.87686	2.87596	2.87506	2.87416	2.87327	2.87237	31.10
31.20	2.87147	2.87057	2.86968	2.86878	2.86788	2.86699	2.86609	2.86520	2.86431	2.86342	31.20
31.30	2.86252	2.86163	2.86074	2.85985	2.85896	2.85807	2.85718	2.85630	2.85541	2.85452	31.30
31.40	2.85364	2.85275	2.85186	2.85098	2.85010	2.84921	2.84833	2.84745	2.84657	2.84568	31.40
31.50	2.84480	2.84392	2.84305	2.84217	2.84129	2.84041	2.83953	2.83866	2.83778	2.83691	31.50
31.60	2.83603	2.83516	2.83428	2.83341	2.83254	2.83166	2.83079	2.82992	2.82905	2.82818	31.60
31.70	2.82731	2.82644	2.82558	2.82471	2.82384	2.82297	2.82211	2.82124	2.82038	2.81951	31.70
31.80	2.81865	2.81779	2.81692	2.81606	2.81520	2.81434	2.81348	2.81262	2.81176	2.81090	31.80
31.90	2.81004	2.80918	2.80833	2.80747	2.80661	2.80576	2.80490	2.80405	2.80320	2.80234	31.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
32.00	2.80149	2.80064	2.79978	2.79893	2.79808	2.79723	2.79638	2.79553	2.79469	2.79384	32.00
32.10	2.79299	2.79214	2.79130	2.79045	2.78961	2.78876	2.78792	2.78707	2.78623	2.78539	32.10
32.20	2.78454	2.78370	2.78286	2.78202	2.78118	2.78034	2.77950	2.77866	2.77783	2.77699	32.20
32.30	2.77615	2.77532	2.77448	2.77364	2.77281	2.77198	2.77114	2.77031	2.76948	2.76864	32.30
32.40	2.76781	2.76698	2.76615	2.76532	2.76449	2.76366	2.76283	2.76201	2.76118	2.76035	32.40
32.50	2.75952	2.75870	2.75787	2.75705	2.75622	2.75540	2.75458	2.75375	2.75293	2.75211	32.50
32.60	2.75129	2.75047	2.74965	2.74883	2.74801	2.74719	2.74637	2.74555	2.74474	2.74392	32.60
32.70	2.74310	2.74229	2.74147	2.74066	2.73984	2.73903	2.73822	2.73740	2.73659	2.73578	32.70
32.80	2.73497	2.73416	2.73335	2.73254	2.73173	2.73092	2.73011	2.72930	2.72850	2.72769	32.80
32.90	2.72688	2.72608	2.72527	2.72447	2.72366	2.72286	2.72206	2.72125	2.72045	2.71965	32.90
33.00	2.71885	2.71805	2.71725	2.71645	2.71565	2.71485	2.71405	2.71325	2.71246	2.71166	33.00
33.10	2.71086	2.71007	2.70927	2.70848	2.70768	2.70689	2.70610	2.70530	2.70451	2.70372	33.10
33.20	2.70293	2.70214	2.70135	2.70056	2.69977	2.69898	2.69819	2.69740	2.69661	2.69583	33.20
33.30	2.69504	2.69425	2.69347	2.69268	2.69190	2.69111	2.69033	2.68955	2.68876	2.68798	33.30
33.40	2.68720	2.68642	2.68564	2.68486	2.68408	2.68330	2.68252	2.68174	2.68096	2.68018	33.40
33.50	2.67941	2.67863	2.67785	2.67708	2.67630	2.67553	2.67475	2.67398	2.67321	2.67243	33.50
33.60	2.67166	2.67089	2.67012	2.66935	2.66858	2.66781	2.66704	2.66627	2.66550	2.66473	33.60
33.70	2.66396	2.66319	2.66243	2.66166	2.66090	2.66013	2.65937	2.65860	2.65784	2.65707	33.70
33.80	2.65631	2.65555	2.65478	2.65402	2.65326	2.65250	2.65174	2.65098	2.65022	2.64946	33.80
33.90	2.64870	2.64794	2.64719	2.64643	2.64567	2.64492	2.64416	2.64341	2.64265	2.64190	33.90
34.00	2.64114	2.64039	2.63963	2.63888	2.63813	2.63738	2.63663	2.63588	2.63512	2.63437	34.00
34.10	2.63363	2.63288	2.63213	2.63138	2.63063	2.62988	2.62914	2.62839	2.62764	2.62690	34.10
34.20	2.62615	2.62541	2.62466	2.62392	2.62318	2.62243	2.62169	2.62095	2.62021	2.61947	34.20
34.30	2.61873	2.61799	2.61725	2.61651	2.61577	2.61503	2.61429	2.61355	2.61282	2.61208	34.30
34.40	2.61134	2.61061	2.60987	2.60914	2.60840	2.60767	2.60693	2.60620	2.60547	2.60473	34.40
34.50	2.60400	2.60327	2.60254	2.60181	2.60108	2.60035	2.59962	2.59889	2.59816	2.59743	34.50
34.60	2.59671	2.59598	2.59525	2.59452	2.59380	2.59307	2.59235	2.59162	2.59090	2.59017	34.60
34.70	2.58945	2.58873	2.58801	2.58728	2.58656	2.58584	2.58512	2.58440	2.58368	2.58296	34.70
34.80	2.58224	2.58152	2.58080	2.58008	2.57937	2.57865	2.57793	2.57722	2.57650	2.57579	34.80
34.90	2.57507	2.57436	2.57364	2.57293	2.57221	2.57150	2.57079	2.57008	2.56936	2.56865	34.90
35.00	2.56794	2.56723	2.56652	2.56581	2.56510	2.56439	2.56368	2.56298	2.56227	2.56156	35.00
35.10	2.56086	2.56015	2.55944	2.55874	2.55803	2.55733	2.55662	2.55592	2.55522	2.55451	35.10
35.20	2.55381	2.55311	2.55240	2.55170	2.55100	2.55030	2.54960	2.54890	2.54820	2.54750	35.20
35.30	2.54680	2.54611	2.54541	2.54471	2.54401	2.54332	2.54262	2.54192	2.54123	2.54053	35.30
35.40	2.53984	2.53914	2.53845	2.53776	2.53706	2.53637	2.53568	2.53499	2.53430	2.53360	35.40
35.50	2.53291	2.53222	2.53153	2.53084	2.53015	2.52947	2.52878	2.52809	2.52740	2.52672	35.50
35.60	2.52603	2.52534	2.52466	2.52397	2.52329	2.52260	2.52192	2.52123	2.52055	2.51986	35.60
35.70	2.51918	2.51850	2.51782	2.51714	2.51645	2.51577	2.51509	2.51441	2.51373	2.51305	35.70
35.80	2.51237	2.51170	2.51102	2.51034	2.50966	2.50899	2.50831	2.50763	2.50696	2.50628	35.80
35.90	2.50561	2.50493	2.50426	2.50358	2.50291	2.50224	2.50156	2.50089	2.50022	2.49955	35.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
36.00	2.49888	2.49820	2.49753	2.49686	2.49619	2.49552	2.49486	2.49419	2.49352	2.49285	36.00
36.10	2.49218	2.49152	2.49085	2.49018	2.48952	2.48885	2.48819	2.48752	2.48686	2.48619	36.10
36.20	2.48553	2.48486	2.48420	2.48354	2.48288	2.48221	2.48155	2.48089	2.48023	2.47957	36.20
36.30	2.47891	2.47825	2.47759	2.47693	2.47627	2.47562	2.47496	2.47430	2.47364	2.47299	36.30
36.40	2.47233	2.47167	2.47102	2.47036	2.46971	2.46905	2.46840	2.46775	2.46709	2.46644	36.40
36.50	2.46579	2.46513	2.46448	2.46383	2.46318	2.46253	2.46188	2.46123	2.46058	2.45993	36.50
36.60	2.45928	2.45863	2.45798	2.45733	2.45669	2.45604	2.45539	2.45475	2.45410	2.45345	36.60
36.70	2.45281	2.45216	2.45152	2.45087	2.45023	2.44959	2.44894	2.44830	2.44766	2.44701	36.70
36.80	2.44637	2.44573	2.44509	2.44445	2.44381	2.44317	2.44253	2.44189	2.44125	2.44061	36.80
36.90	2.43997	2.43933	2.43870	2.43806	2.43742	2.43679	2.43615	2.43551	2.43488	2.43424	36.90
37.00	2.43361	2.43297	2.43234	2.43170	2.43107	2.43044	2.42981	2.42917	2.42854	2.42791	37.00
37.10	2.42728	2.42665	2.42602	2.42539	2.42476	2.42413	2.42350	2.42287	2.42224	2.42161	37.10
37.20	2.42098	2.42036	2.41973	2.41910	2.41847	2.41785	2.41722	2.41660	2.41597	2.41535	37.20
37.30	2.41472	2.41410	2.41347	2.41285	2.41223	2.41160	2.41098	2.41036	2.40974	2.40912	37.30
37.40	2.40850	2.40787	2.40725	2.40663	2.40601	2.40540	2.40478	2.40416	2.40354	2.40292	37.40
37.50	2.40230	2.40169	2.40107	2.40045	2.39984	2.39922	2.39860	2.39799	2.39737	2.39676	37.50
37.60	2.39614	2.39553	2.39492	2.39430	2.39369	2.39308	2.39246	2.39185	2.39124	2.39063	37.60
37.70	2.39002	2.38941	2.38880	2.38819	2.38758	2.38697	2.38636	2.38575	2.38514	2.38453	37.70
37.80	2.38393	2.38332	2.38271	2.38210	2.38150	2.38089	2.38029	2.37968	2.37907	2.37847	37.80
37.90	2.37787	2.37726	2.37666	2.37605	2.37545	2.37485	2.37425	2.37364	2.37304	2.37244	37.90
38.00	2.37184	2.37124	2.37064	2.37004	2.36944	2.36884	2.36824	2.36764	2.36704	2.36644	38.00
38.10	2.36584	2.36525	2.36465	2.36405	2.36345	2.36286	2.36226	2.36167	2.36107	2.36047	38.10
38.20	2.35988	2.35929	2.35869	2.35810	2.35750	2.35691	2.35632	2.35572	2.35513	2.35454	38.20
38.30	2.35395	2.35336	2.35277	2.35218	2.35159	2.35099	2.35041	2.34982	2.34923	2.34864	38.30
38.40	2.34805	2.34746	2.34687	2.34629	2.34570	2.34511	2.34452	2.34394	2.34335	2.34277	38.40
38.50	2.34218	2.34160	2.34101	2.34043	2.33984	2.33926	2.33867	2.33809	2.33751	2.33693	38.50
38.60	2.33634	2.33576	2.33518	2.33460	2.33402	2.33344	2.33286	2.33228	2.33170	2.33112	38.60
38.70	2.33054	2.32996	2.32938	2.32880	2.32822	2.32764	2.32707	2.32649	2.32591	2.32534	38.70
38.80	2.32476	2.32418	2.32361	2.32303	2.32246	2.32188	2.32131	2.32074	2.32016	2.31959	38.80
38.90	2.31901	2.31844	2.31787	2.31730	2.31672	2.31615	2.31558	2.31501	2.31444	2.31387	38.90
39.00	2.31330	2.31273	2.31216	2.31159	2.31102	2.31045	2.30988	2.30932	2.30875	2.30818	39.00
39.10	2.30761	2.30705	2.30648	2.30591	2.30535	2.30478	2.30422	2.30365	2.30309	2.30252	39.10
39.20	2.30196	2.30139	2.30083	2.30027	2.29970	2.29914	2.29858	2.29801	2.29745	2.29689	39.20
39.30	2.29633	2.29577	2.29521	2.29465	2.29409	2.29353	2.29297	2.29241	2.29185	2.29129	39.30
39.40	2.29073	2.29017	2.28962	2.28906	2.28850	2.28794	2.28739	2.28683	2.28628	2.28572	39.40
39.50	2.28516	2.28461	2.28405	2.28350	2.28294	2.28239	2.28184	2.28128	2.28073	2.28018	39.50
39.60	2.27962	2.27907	2.27852	2.27797	2.27742	2.27686	2.27631	2.27576	2.27521	2.27466	39.60
39.70	2.27411	2.27356	2.27301	2.27246	2.27192	2.27137	2.27082	2.27027	2.26972	2.26918	39.70
39.80	2.26863	2.26808	2.26754	2.26699	2.26644	2.26590	2.26535	2.26481	2.26426	2.26372	39.80
39.90	2.26317	2.26263	2.26209	2.26154	2.26100	2.26046	2.25991	2.25937	2.25883	2.25829	39.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
40.00	2.25775	2.25721	2.25667	2.25612	2.25558	2.25504	2.25450	2.25396	2.25343	2.25289	40.00
40.10	2.25235	2.25181	2.25127	2.25073	2.25020	2.24966	2.24912	2.24858	2.24805	2.24751	40.10
40.20	2.24698	2.24644	2.24590	2.24537	2.24483	2.24430	2.24377	2.24323	2.24270	2.24216	40.20
40.30	2.24163	2.24110	2.24057	2.24003	2.23950	2.23897	2.23844	2.23791	2.23737	2.23684	40.30
40.40	2.23631	2.23578	2.23525	2.23472	2.23419	2.23366	2.23314	2.23261	2.23208	2.23155	40.40
40.50	2.23102	2.23050	2.22997	2.22944	2.22891	2.22839	2.22786	2.22734	2.22681	2.22628	40.50
40.60	2.22576	2.22523	2.22471	2.22418	2.22366	2.22314	2.22261	2.22209	2.22157	2.22104	40.60
40.70	2.22052	2.22000	2.21948	2.21895	2.21843	2.21791	2.21739	2.21687	2.21635	2.21583	40.70
40.80	2.21531	2.21479	2.21427	2.21375	2.21323	2.21271	2.21220	2.21168	2.21116	2.21064	40.80
40.90	2.21012	2.20961	2.20909	2.20857	2.20806	2.20754	2.20703	2.20651	2.20599	2.20548	40.90
41.00	2.20496	2.20445	2.20394	2.20342	2.20291	2.20239	2.20188	2.20137	2.20086	2.20034	41.00
41.10	2.19983	2.19932	2.19881	2.19830	2.19778	2.19727	2.19676	2.19625	2.19574	2.19523	41.10
41.20	2.19472	2.19421	2.19370	2.19320	2.19269	2.19218	2.19167	2.19116	2.19065	2.19015	41.20
41.30	2.18964	2.18913	2.18863	2.18812	2.18761	2.18711	2.18660	2.18610	2.18559	2.18509	41.30
41.40	2.18458	2.18408	2.18357	2.18307	2.18257	2.18206	2.18156	2.18106	2.18055	2.18005	41.40
41.50	2.17955	2.17905	2.17855	2.17804	2.17754	2.17704	2.17654	2.17604	2.17554	2.17504	41.50
41.60	2.17454	2.17404	2.17354	2.17304	2.17255	2.17205	2.17155	2.17105	2.17055	2.17006	41.60
41.70	2.16956	2.16906	2.16856	2.16807	2.16757	2.16708	2.16658	2.16608	2.16559	2.16509	41.70
41.80	2.16460	2.16411	2.16361	2.16312	2.16262	2.16213	2.16164	2.16114	2.16065	2.16016	41.80
41.90	2.15967	2.15917	2.15868	2.15819	2.15770	2.15721	2.15672	2.15623	2.15573	2.15524	41.90
42.00	2.15475	2.15426	2.15378	2.15329	2.15280	2.15231	2.15182	2.15133	2.15084	2.15036	42.00
42.10	2.14987	2.14938	2.14889	2.14841	2.14792	2.14743	2.14695	2.14646	2.14598	2.14549	42.10
42.20	2.14501	2.14452	2.14404	2.14355	2.14307	2.14258	2.14210	2.14162	2.14113	2.14065	42.20
42.30	2.14017	2.13968	2.13920	2.13872	2.13824	2.13775	2.13727	2.13679	2.13631	2.13583	42.30
42.40	2.13535	2.13487	2.13439	2.13391	2.13343	2.13295	2.13247	2.13199	2.13151	2.13104	42.40
42.50	2.13056	2.13008	2.12960	2.12912	2.12865	2.12817	2.12769	2.12722	2.12674	2.12626	42.50
42.60	2.12579	2.12531	2.12484	2.12436	2.12389	2.12341	2.12294	2.12246	2.12199	2.12151	42.60
42.70	2.12104	2.12057	2.12009	2.11962	2.11915	2.11868	2.11820	2.11773	2.11726	2.11679	42.70
42.80	2.11632	2.11585	2.11538	2.11490	2.11443	2.11396	2.11349	2.11302	2.11255	2.11208	42.80
42.90	2.11162	2.11115	2.11068	2.11021	2.10974	2.10927	2.10881	2.10834	2.10787	2.10740	42.90
43.00	2.10694	2.10647	2.10600	2.10554	2.10507	2.10461	2.10414	2.10368	2.10321	2.10275	43.00
43.10	2.10228	2.10182	2.10135	2.10089	2.10042	2.09996	2.09950	2.09903	2.09857	2.09811	43.10
43.20	2.09765	2.09718	2.09672	2.09626	2.09580	2.09534	2.09488	2.09441	2.09395	2.09349	43.20
43.30	2.09303	2.09257	2.09211	2.09165	2.09119	2.09074	2.09028	2.08982	2.08936	2.08890	43.30
43.40	2.08844	2.08799	2.08753	2.08707	2.08661	2.08616	2.08570	2.08524	2.08479	2.08433	43.40
43.50	2.08387	2.08342	2.08296	2.08251	2.08205	2.08160	2.08114	2.08069	2.08023	2.07978	43.50
43.60	2.07933	2.07887	2.07842	2.07797	2.07751	2.07706	2.07661	2.07616	2.07570	2.07525	43.60
43.70	2.07480	2.07435	2.07390	2.07345	2.07300	2.07255	2.07210	2.07164	2.07119	2.07075	43.70
43.80	2.07030	2.06985	2.06940	2.06895	2.06850	2.06805	2.06760	2.06715	2.06671	2.06626	43.80
43.90	2.06581	2.06536	2.06492	2.06447	2.06402	2.06358	2.06313	2.06269	2.06224	2.06179	43.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
44.00	2.06135	2.06090	2.06046	2.06001	2.05957	2.05913	2.05868	2.05824	2.05779	2.05735	44.00
44.10	2.05691	2.05646	2.05602	2.05558	2.05514	2.05469	2.05425	2.05381	2.05337	2.05293	44.10
44.20	2.05249	2.05204	2.05160	2.05116	2.05072	2.05028	2.04984	2.04940	2.04896	2.04852	44.20
44.30	2.04809	2.04765	2.04721	2.04677	2.04633	2.04589	2.04545	2.04502	2.04458	2.04414	44.30
44.40	2.04370	2.04327	2.04283	2.04239	2.04196	2.04152	2.04109	2.04065	2.04021	2.03978	44.40
44.50	2.03934	2.03891	2.03847	2.03804	2.03761	2.03717	2.03674	2.03630	2.03587	2.03544	44.50
44.60	2.03500	2.03457	2.03414	2.03371	2.03327	2.03284	2.03241	2.03198	2.03155	2.03112	44.60
44.70	2.03068	2.03025	2.02982	2.02939	2.02896	2.02853	2.02810	2.02767	2.02724	2.02681	44.70
44.80	2.02638	2.02596	2.02553	2.02510	2.02467	2.02424	2.02381	2.02339	2.02296	2.02253	44.80
44.90	2.02210	2.02168	2.02125	2.02082	2.02040	2.01997	2.01954	2.01912	2.01869	2.01827	44.90
45.00	2.01784	2.01742	2.01699	2.01657	2.01614	2.01572	2.01530	2.01487	2.01445	2.01402	45.00
45.10	2.01360	2.01318	2.01276	2.01233	2.01191	2.01149	2.01107	2.01064	2.01022	2.00980	45.10
45.20	2.00938	2.00896	2.00854	2.00812	2.00770	2.00728	2.00686	2.00644	2.00602	2.00560	45.20
45.30	2.00518	2.00476	2.00434	2.00392	2.00350	2.00308	2.00266	2.00225	2.00183	2.00141	45.30
45.40	2.00099	2.00057	2.00016	1.99974	1.99932	1.99891	1.99849	1.99807	1.99766	1.99724	45.40
45.50	1.99683	1.99641	1.99600	1.99558	1.99517	1.99475	1.99434	1.99392	1.99351	1.99309	45.50
45.60	1.99268	1.99227	1.99185	1.99144	1.99103	1.99062	1.99020	1.98979	1.98938	1.98897	45.60
45.70	1.98855	1.98814	1.98773	1.98732	1.98691	1.98650	1.98609	1.98568	1.98527	1.98485	45.70
45.80	1.98444	1.98403	1.98363	1.98322	1.98281	1.98240	1.98199	1.98158	1.98117	1.98076	45.80
45.90	1.98035	1.97995	1.97954	1.97913	1.97872	1.97832	1.97791	1.97750	1.97710	1.97669	45.90
46.00	1.97628	1.97588	1.97547	1.97506	1.97466	1.97425	1.97385	1.97344	1.97304	1.97263	46.00
46.10	1.97223	1.97182	1.97142	1.97102	1.97061	1.97021	1.96980	1.96940	1.96900	1.96860	46.10
46.20	1.96819	1.96779	1.96739	1.96699	1.96658	1.96618	1.96578	1.96538	1.96498	1.96458	46.20
46.30	1.96417	1.96377	1.96337	1.96297	1.96257	1.96217	1.96177	1.96137	1.96097	1.96057	46.30
46.40	1.96017	1.95978	1.95938	1.95898	1.95858	1.95818	1.95778	1.95739	1.95699	1.95659	46.40
46.50	1.95619	1.95580	1.95540	1.95500	1.95460	1.95421	1.95381	1.95342	1.95302	1.95262	46.50
46.60	1.95223	1.95183	1.95144	1.95104	1.95065	1.95025	1.94986	1.94946	1.94907	1.94867	46.60
46.70	1.94828	1.94789	1.94749	1.94710	1.94671	1.94631	1.94592	1.94553	1.94514	1.94474	46.70
46.80	1.94435	1.94396	1.94357	1.94318	1.94278	1.94239	1.94200	1.94161	1.94122	1.94083	46.80
46.90	1.94044	1.94005	1.93966	1.93927	1.93888	1.93849	1.93810	1.93771	1.93732	1.93693	46.90
47.00	1.93654	1.93616	1.93577	1.93538	1.93499	1.93460	1.93421	1.93383	1.93344	1.93305	47.00
47.10	1.93267	1.93228	1.93189	1.93151	1.93112	1.93073	1.93035	1.92996	1.92958	1.92919	47.10
47.20	1.92880	1.92842	1.92803	1.92765	1.92726	1.92688	1.92650	1.92611	1.92573	1.92534	47.20
47.30	1.92496	1.92458	1.92419	1.92381	1.92343	1.92304	1.92266	1.92228	1.92190	1.92151	47.30
47.40	1.92113	1.92075	1.92037	1.91999	1.91961	1.91923	1.91884	1.91846	1.91808	1.91770	47.40
47.50	1.91732	1.91694	1.91656	1.91618	1.91580	1.91542	1.91504	1.91466	1.91428	1.91391	47.50
47.60	1.91353	1.91315	1.91277	1.91239	1.91201	1.91164	1.91126	1.91088	1.91050	1.91013	47.60
47.70	1.90975	1.90937	1.90900	1.90862	1.90824	1.90787	1.90749	1.90711	1.90674	1.90636	47.70
47.80	1.90599	1.90561	1.90524	1.90486	1.90449	1.90411	1.90374	1.90336	1.90299	1.90262	47.80
47.90	1.90224	1.90187	1.90150	1.90112	1.90075	1.90038	1.90000	1.89963	1.89926	1.89889	47.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
48.00	1.89851	1.89814	1.89777	1.89740	1.89703	1.89665	1.89628	1.89591	1.89554	1.89517	48.00
48.10	1.89480	1.89443	1.89406	1.89369	1.89332	1.89295	1.89258	1.89221	1.89184	1.89147	48.10
48.20	1.89110	1.89073	1.89037	1.89000	1.88963	1.88926	1.88889	1.88852	1.88816	1.88779	48.20
48.30	1.88742	1.88705	1.88669	1.88632	1.88595	1.88559	1.88522	1.88485	1.88449	1.88412	48.30
48.40	1.88376	1.88339	1.88302	1.88266	1.88229	1.88193	1.88156	1.88120	1.88083	1.88047	48.40
48.50	1.88011	1.87974	1.87938	1.87901	1.87865	1.87829	1.87792	1.87756	1.87720	1.87683	48.50
48.60	1.87647	1.87611	1.87575	1.87538	1.87502	1.87466	1.87430	1.87394	1.87358	1.87321	48.60
48.70	1.87285	1.87249	1.87213	1.87177	1.87141	1.87105	1.87069	1.87033	1.86997	1.86961	48.70
48.80	1.86925	1.86889	1.86853	1.86817	1.86781	1.86745	1.86709	1.86674	1.86638	1.86602	48.80
48.90	1.86566	1.86530	1.86494	1.86459	1.86423	1.86387	1.86351	1.86316	1.86280	1.86244	48.90
49.00	1.86209	1.86173	1.86137	1.86102	1.86066	1.86031	1.85995	1.85959	1.85924	1.85888	49.00
49.10	1.85853	1.85817	1.85782	1.85746	1.85711	1.85676	1.85640	1.85605	1.85569	1.85534	49.10
49.20	1.85499	1.85463	1.85428	1.85393	1.85357	1.85322	1.85287	1.85251	1.85216	1.85181	49.20
49.30	1.85146	1.85111	1.85075	1.85040	1.85005	1.84970	1.84935	1.84900	1.84865	1.84829	49.30
49.40	1.84794	1.84759	1.84724	1.84689	1.84654	1.84619	1.84584	1.84549	1.84514	1.84479	49.40
49.50	1.84445	1.84410	1.84375	1.84340	1.84305	1.84270	1.84235	1.84200	1.84166	1.84131	49.50
49.60	1.84096	1.84061	1.84027	1.83992	1.83957	1.83922	1.83888	1.83853	1.83818	1.83784	49.60
49.70	1.83749	1.83715	1.83680	1.83645	1.83611	1.83576	1.83542	1.83507	1.83473	1.83438	49.70
49.80	1.83404	1.83369	1.83335	1.83300	1.83266	1.83231	1.83197	1.83163	1.83128	1.83094	49.80
49.90	1.83060	1.83025	1.82991	1.82957	1.82922	1.82888	1.82854	1.82820	1.82785	1.82751	49.90
50.00	1.82717	1.82683	1.82649	1.82614	1.82580	1.82546	1.82512	1.82478	1.82444	1.82410	50.00
50.10	1.82376	1.82342	1.82308	1.82274	1.82240	1.82206	1.82172	1.82138	1.82104	1.82070	50.10
50.20	1.82036	1.82002	1.81968	1.81934	1.81900	1.81866	1.81833	1.81799	1.81765	1.81731	50.20
50.30	1.81697	1.81664	1.81630	1.81596	1.81562	1.81529	1.81495	1.81461	1.81428	1.81394	50.30
50.40	1.81360	1.81327	1.81293	1.81260	1.81226	1.81192	1.81159	1.81125	1.81092	1.81058	50.40
50.50	1.81025	1.80991	1.80958	1.80924	1.80891	1.80857	1.80824	1.80791	1.80757	1.80724	50.50
50.60	1.80690	1.80657	1.80624	1.80590	1.80557	1.80524	1.80491	1.80457	1.80424	1.80391	50.60
50.70	1.80358	1.80324	1.80291	1.80258	1.80225	1.80192	1.80159	1.80125	1.80092	1.80059	50.70
50.80	1.80026	1.79993	1.79960	1.79927	1.79894	1.79861	1.79828	1.79795	1.79762	1.79729	50.80
50.90	1.79696	1.79663	1.79630	1.79597	1.79564	1.79531	1.79498	1.79466	1.79433	1.79400	50.90
51.00	1.79367	1.79334	1.79301	1.79269	1.79236	1.79203	1.79170	1.79138	1.79105	1.79072	51.00
51.10	1.79040	1.79007	1.78974	1.78942	1.78909	1.78876	1.78844	1.78811	1.78778	1.78746	51.10
51.20	1.78713	1.78681	1.78648	1.78616	1.78583	1.78551	1.78518	1.78486	1.78453	1.78421	51.20
51.30	1.78389	1.78356	1.78324	1.78291	1.78259	1.78227	1.78194	1.78162	1.78130	1.78097	51.30
51.40	1.78065	1.78033	1.78000	1.77968	1.77936	1.77904	1.77871	1.77839	1.77807	1.77775	51.40
51.50	1.77743	1.77711	1.77678	1.77646	1.77614	1.77582	1.77550	1.77518	1.77486	1.77454	51.50
51.60	1.77422	1.77390	1.77358	1.77326	1.77294	1.77262	1.77230	1.77198	1.77166	1.77134	51.60
51.70	1.77102	1.77070	1.77038	1.77007	1.76975	1.76943	1.76911	1.76879	1.76847	1.76816	51.70
51.80	1.76784	1.76752	1.76720	1.76689	1.76657	1.76625	1.76593	1.76562	1.76530	1.76498	51.80
51.90	1.76467	1.76435	1.76404	1.76372	1.76340	1.76309	1.76277	1.76246	1.76214	1.76182	51.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
52.00	1.76151	1.76119	1.76088	1.76056	1.76025	1.75994	1.75962	1.75931	1.75899	1.75868	52.00
52.10	1.75836	1.75805	1.75774	1.75742	1.75711	1.75680	1.75648	1.75617	1.75586	1.75554	52.10
52.20	1.75523	1.75492	1.75461	1.75429	1.75398	1.75367	1.75336	1.75305	1.75273	1.75242	52.20
52.30	1.75211	1.75180	1.75149	1.75118	1.75087	1.75056	1.75024	1.74993	1.74962	1.74931	52.30
52.40	1.74900	1.74869	1.74838	1.74807	1.74776	1.74745	1.74714	1.74683	1.74653	1.74622	52.40
52.50	1.74591	1.74560	1.74529	1.74498	1.74467	1.74436	1.74406	1.74375	1.74344	1.74313	52.50
52.60	1.74282	1.74252	1.74221	1.74190	1.74159	1.74129	1.74098	1.74067	1.74037	1.74006	52.60
52.70	1.73975	1.73945	1.73914	1.73883	1.73853	1.73822	1.73792	1.73761	1.73730	1.73700	52.70
52.80	1.73669	1.73639	1.73608	1.73578	1.73547	1.73517	1.73486	1.73456	1.73425	1.73395	52.80
52.90	1.73365	1.73334	1.73304	1.73273	1.73243	1.73213	1.73182	1.73152	1.73122	1.73091	52.90
53.00	1.73061	1.73031	1.73001	1.72970	1.72940	1.72910	1.72880	1.72849	1.72819	1.72789	53.00
53.10	1.72759	1.72729	1.72699	1.72668	1.72638	1.72608	1.72578	1.72548	1.72518	1.72488	53.10
53.20	1.72458	1.72428	1.72398	1.72368	1.72338	1.72308	1.72278	1.72248	1.72218	1.72188	53.20
53.30	1.72158	1.72128	1.72098	1.72068	1.72038	1.72008	1.71978	1.71948	1.71919	1.71889	53.30
53.40	1.71859	1.71829	1.71799	1.71770	1.71740	1.71710	1.71680	1.71651	1.71621	1.71591	53.40
53.50	1.71561	1.71532	1.71502	1.71472	1.71443	1.71413	1.71383	1.71354	1.71324	1.71295	53.50
53.60	1.71265	1.71235	1.71206	1.71176	1.71147	1.71117	1.71088	1.71058	1.71029	1.70999	53.60
53.70	1.70970	1.70940	1.70911	1.70881	1.70852	1.70822	1.70793	1.70764	1.70734	1.70705	53.70
53.80	1.70675	1.70646	1.70617	1.70587	1.70558	1.70529	1.70500	1.70470	1.70441	1.70412	53.80
53.90	1.70382	1.70353	1.70324	1.70295	1.70266	1.70236	1.70207	1.70178	1.70149	1.70120	53.90
54.00	1.70091	1.70061	1.70032	1.70003	1.69974	1.69945	1.69916	1.69887	1.69858	1.69829	54.00
54.10	1.69800	1.69771	1.69742	1.69713	1.69684	1.69655	1.69626	1.69597	1.69568	1.69539	54.10
54.20	1.69510	1.69481	1.69452	1.69424	1.69395	1.69366	1.69337	1.69308	1.69279	1.69250	54.20
54.30	1.69222	1.69193	1.69164	1.69135	1.69107	1.69078	1.69049	1.69020	1.68992	1.68963	54.30
54.40	1.68934	1.68906	1.68877	1.68848	1.68820	1.68791	1.68762	1.68734	1.68705	1.68677	54.40
54.50	1.68648	1.68619	1.68591	1.68562	1.68534	1.68505	1.68477	1.68448	1.68420	1.68391	54.50
54.60	1.68363	1.68334	1.68306	1.68277	1.68249	1.68221	1.68192	1.68164	1.68135	1.68107	54.60
54.70	1.68079	1.68050	1.68022	1.67994	1.67965	1.67937	1.67909	1.67880	1.67852	1.67824	54.70
54.80	1.67796	1.67767	1.67739	1.67711	1.67683	1.67654	1.67626	1.67598	1.67570	1.67542	54.80
54.90	1.67514	1.67486	1.67457	1.67429	1.67401	1.67373	1.67345	1.67317	1.67289	1.67261	54.90
55.00	1.67233	1.67205	1.67177	1.67149	1.67121	1.67093	1.67065	1.67037	1.67009	1.66981	55.00
55.10	1.66953	1.66925	1.66897	1.66869	1.66841	1.66813	1.66786	1.66758	1.66730	1.66702	55.10
55.20	1.66674	1.66646	1.66619	1.66591	1.66563	1.66535	1.66507	1.66480	1.66452	1.66424	55.20
55.30	1.66397	1.66369	1.66341	1.66313	1.66286	1.66258	1.66230	1.66203	1.66175	1.66147	55.30
55.40	1.66120	1.66092	1.66065	1.66037	1.66010	1.65982	1.65954	1.65927	1.65899	1.65872	55.40
55.50	1.65844	1.65817	1.65789	1.65762	1.65734	1.65707	1.65679	1.65652	1.65625	1.65597	55.50
55.60	1.65570	1.65542	1.65515	1.65488	1.65460	1.65433	1.65405	1.65378	1.65351	1.65323	55.60
55.70	1.65296	1.65269	1.65242	1.65214	1.65187	1.65160	1.65133	1.65105	1.65078	1.65051	55.70
55.80	1.65024	1.64996	1.64969	1.64942	1.64915	1.64888	1.64861	1.64834	1.64806	1.64779	55.80
55.90	1.64752	1.64725	1.64698	1.64671	1.64644	1.64617	1.64590	1.64563	1.64536	1.64509	55.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
56.00	1.64482	1.64455	1.64428	1.64401	1.64374	1.64347	1.64320	1.64293	1.64266	1.64239	56.00
56.10	1.64212	1.64185	1.64159	1.64132	1.64105	1.64078	1.64051	1.64024	1.63997	1.63971	56.10
56.20	1.63944	1.63317	1.63890	1.63864	1.63837	1.63810	1.63783	1.63757	1.63730	1.63703	56.20
56.30	1.63676	1.63650	1.63623	1.63596	1.63570	1.63543	1.63516	1.63490	1.63463	1.63437	56.30
56.40	1.63410	1.63383	1.63357	1.63330	1.63304	1.63277	1.63251	1.63224	1.63198	1.63171	56.40
56.50	1.63144	1.63118	1.63092	1.63065	1.63039	1.63012	1.62986	1.62959	1.62933	1.62906	56.50
56.60	1.62880	1.62854	1.62827	1.62801	1.62775	1.62748	1.62722	1.62695	1.62669	1.62643	56.60
56.70	1.62617	1.62590	1.62564	1.62538	1.62511	1.62485	1.62459	1.62433	1.62406	1.62380	56.70
56.80	1.62354	1.62328	1.62302	1.62275	1.62249	1.62223	1.62197	1.62171	1.62145	1.62119	56.80
56.90	1.62092	1.62066	1.62040	1.62014	1.61988	1.61962	1.61936	1.61910	1.61884	1.61858	56.90
57.00	1.61832	1.61806	1.61780	1.61754	1.61728	1.61702	1.61676	1.61650	1.61624	1.61598	57.00
57.10	1.61572	1.61546	1.61520	1.61495	1.61469	1.61443	1.61417	1.61391	1.61365	1.61339	57.10
57.20	1.61314	1.61288	1.61262	1.61236	1.61210	1.61185	1.61159	1.61133	1.61107	1.61082	57.20
57.30	1.61056	1.61030	1.61004	1.60979	1.60953	1.60927	1.60902	1.60876	1.60850	1.60825	57.30
57.40	1.60799	1.60773	1.60748	1.60722	1.60697	1.60671	1.60645	1.60620	1.60594	1.60569	57.40
57.50	1.60543	1.60518	1.60492	1.60467	1.60441	1.60416	1.60390	1.60365	1.60339	1.60314	57.50
57.60	1.60288	1.60263	1.60237	1.60212	1.60187	1.60161	1.60136	1.60110	1.60085	1.60060	57.60
57.70	1.60034	1.60009	1.59984	1.59958	1.59933	1.59908	1.59882	1.59857	1.59832	1.59807	57.70
57.80	1.59781	1.59756	1.59731	1.59706	1.59680	1.59655	1.59630	1.59605	1.59580	1.59554	57.80
57.90	1.59529	1.59504	1.59479	1.59454	1.59429	1.59403	1.59378	1.59353	1.59328	1.59303	57.90
58.00	1.59278	1.59253	1.59228	1.59203	1.59178	1.59153	1.59128	1.59103	1.59078	1.59053	58.00
58.10	1.59028	1.59003	1.58978	1.58953	1.58928	1.58903	1.58878	1.58853	1.58828	1.58803	58.10
58.20	1.58778	1.58753	1.58729	1.58704	1.58679	1.58654	1.58629	1.58604	1.58579	1.58555	58.20
58.30	1.58530	1.58505	1.58480	1.58455	1.58431	1.58406	1.58381	1.58356	1.58332	1.58307	58.30
58.40	1.58282	1.58257	1.58233	1.58208	1.58183	1.58159	1.58134	1.58109	1.58085	1.58060	58.40
58.50	1.58035	1.58011	1.57986	1.57962	1.57937	1.57912	1.57888	1.57863	1.57839	1.57814	58.50
58.60	1.57790	1.57765	1.57741	1.57716	1.57692	1.57667	1.57643	1.57618	1.57594	1.57569	58.60
58.70	1.57545	1.57520	1.57496	1.57471	1.57447	1.57423	1.57398	1.57374	1.57349	1.57325	58.70
58.80	1.57301	1.57276	1.57252	1.57228	1.57203	1.57179	1.57155	1.57130	1.57106	1.57082	58.80
58.90	1.57058	1.57033	1.57009	1.56985	1.56960	1.56936	1.56912	1.56888	1.56864	1.56839	58.90
59.00	1.56815	1.56791	1.56767	1.56743	1.56719	1.56694	1.56670	1.56646	1.56622	1.56598	59.00
59.10	1.56574	1.56550	1.56526	1.56501	1.56477	1.56453	1.56429	1.56405	1.56381	1.56357	59.10
59.20	1.56333	1.56309	1.56285	1.56261	1.56237	1.56213	1.56189	1.56165	1.56141	1.56117	59.20
59.30	1.56093	1.56070	1.56046	1.56022	1.55998	1.55974	1.55950	1.55926	1.55902	1.55878	59.30
59.40	1.55855	1.55831	1.55807	1.55783	1.55759	1.55735	1.55712	1.55688	1.55664	1.55640	59.40
59.50	1.55617	1.55593	1.55569	1.55545	1.55522	1.55498	1.55474	1.55450	1.55427	1.55403	59.50
59.60	1.55379	1.55356	1.55332	1.55308	1.55285	1.55261	1.55237	1.55214	1.55190	1.55167	59.60
59.70	1.55143	1.55119	1.55096	1.55072	1.55049	1.55025	1.55002	1.54978	1.54955	1.54931	59.70
59.80	1.54908	1.54884	1.54861	1.54837	1.54814	1.54790	1.54767	1.54743	1.54720	1.54696	59.80
59.90	1.54673	1.54649	1.54626	1.54603	1.54579	1.54556	1.54532	1.54509	1.54486	1.54462	59.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
60.00	1.54439	1.54416	1.54392	1.54369	1.54346	1.54322	1.54299	1.54276	1.54253	1.54229	60.00
60.10	1.54206	1.54183	1.54159	1.54136	1.54113	1.54090	1.54067	1.54043	1.54020	1.53997	60.10
60.20	1.53974	1.53951	1.53927	1.53904	1.53881	1.53858	1.53835	1.53812	1.53789	1.53765	60.20
60.30	1.53742	1.53719	1.53696	1.53673	1.53650	1.53627	1.53604	1.53581	1.53558	1.53535	60.30
60.40	1.53512	1.53489	1.53466	1.53443	1.53420	1.53397	1.53374	1.53351	1.53328	1.53305	60.40
60.50	1.53282	1.53259	1.53236	1.53213	1.53190	1.53167	1.53145	1.53122	1.53099	1.53076	60.50
60.60	1.53053	1.53030	1.53007	1.52985	1.52962	1.52939	1.52916	1.52893	1.52870	1.52848	60.60
60.70	1.52825	1.52802	1.52779	1.52757	1.52734	1.52711	1.52688	1.52666	1.52643	1.52620	60.70
60.80	1.52598	1.52575	1.52552	1.52529	1.52507	1.52484	1.52461	1.52439	1.52416	1.52394	60.80
60.90	1.52371	1.52348	1.52326	1.52303	1.52281	1.52258	1.52235	1.52213	1.52190	1.52168	60.90
61.00	1.52145	1.52123	1.52100	1.52078	1.52055	1.52033	1.52010	1.51988	1.51965	1.51943	61.00
61.10	1.51920	1.51898	1.51875	1.51853	1.51830	1.51808	1.51786	1.51763	1.51741	1.51718	61.10
61.20	1.51696	1.51674	1.51651	1.51629	1.51606	1.51584	1.51562	1.51539	1.51517	1.51495	61.20
61.30	1.51472	1.51450	1.51428	1.51406	1.51383	1.51361	1.51339	1.51316	1.51294	1.51272	61.30
61.40	1.51250	1.51228	1.51205	1.51183	1.51161	1.51139	1.51117	1.51094	1.51072	1.51050	61.40
61.50	1.51028	1.51006	1.50984	1.50961	1.50939	1.50917	1.50895	1.50873	1.50851	1.50829	61.50
61.60	1.50807	1.50785	1.50763	1.50741	1.50718	1.50696	1.50674	1.50652	1.50630	1.50608	61.60
61.70	1.50586	1.50564	1.50542	1.50520	1.50498	1.50476	1.50454	1.50433	1.50411	1.50389	61.70
61.80	1.50367	1.50345	1.50323	1.50301	1.50279	1.50257	1.50235	1.50213	1.50192	1.50170	61.80
61.90	1.50148	1.50126	1.50104	1.50082	1.50060	1.50039	1.50017	1.49995	1.49973	1.49951	61.90
62.00	1.49930	1.49908	1.49886	1.49864	1.49843	1.49821	1.49799	1.49777	1.49756	1.49734	62.00
62.10	1.49712	1.49691	1.49669	1.49647	1.49626	1.49604	1.49582	1.49561	1.49539	1.49517	62.10
62.20	1.49496	1.49474	1.49452	1.49431	1.49409	1.49388	1.49366	1.49344	1.49323	1.49301	62.20
62.30	1.49280	1.49258	1.49237	1.49215	1.49194	1.49172	1.49151	1.49129	1.49108	1.49086	62.30
62.40	1.49065	1.49043	1.49022	1.49000	1.48979	1.48957	1.48936	1.48914	1.48893	1.48872	62.40
62.50	1.48850	1.48829	1.48807	1.48786	1.48765	1.48743	1.48722	1.48701	1.48679	1.48658	62.50
62.60	1.48636	1.48615	1.48594	1.48573	1.48551	1.48530	1.48509	1.48487	1.48466	1.48445	62.60
62.70	1.48424	1.48402	1.48381	1.48360	1.48339	1.48317	1.48296	1.48275	1.48254	1.48232	62.70
62.80	1.48211	1.48190	1.48169	1.48148	1.48127	1.48105	1.48084	1.48063	1.48042	1.48021	62.80
62.90	1.48000	1.47979	1.47958	1.47936	1.47915	1.47894	1.47873	1.47852	1.47831	1.47810	62.90
63.00	1.47789	1.47768	1.47747	1.47726	1.47705	1.47684	1.47663	1.47642	1.47621	1.47600	63.00
63.10	1.47579	1.47558	1.47537	1.47516	1.47495	1.47474	1.47453	1.47432	1.47411	1.47390	63.10
63.20	1.47369	1.47349	1.47328	1.47307	1.47286	1.47265	1.47244	1.47223	1.47202	1.47182	63.20
63.30	1.47161	1.47140	1.47119	1.47098	1.47077	1.47057	1.47036	1.47015	1.46994	1.46974	63.30
63.40	1.46953	1.46932	1.46911	1.46890	1.46870	1.46849	1.46828	1.46808	1.46787	1.46766	63.40
63.50	1.46745	1.46725	1.46704	1.46683	1.46663	1.46642	1.46621	1.46601	1.46580	1.46559	63.50
63.60	1.46539	1.46518	1.46498	1.46477	1.46456	1.46436	1.46415	1.46395	1.46374	1.46354	63.60
63.70	1.46333	1.46312	1.46292	1.46271	1.46251	1.46230	1.46210	1.46189	1.46169	1.46148	63.70
63.80	1.46128	1.46107	1.46087	1.46066	1.46046	1.46025	1.46005	1.45984	1.45964	1.45944	63.80
63.90	1.45923	1.45903	1.45882	1.45862	1.45842	1.45821	1.45801	1.45780	1.45760	1.45740	63.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
64.00	1.45719	1.45699	1.45679	1.45658	1.45638	1.45618	1.45597	1.45577	1.45557	1.45536	64.00
64.10	1.45516	1.45496	1.45476	1.45455	1.45435	1.45415	1.45395	1.45374	1.45354	1.45334	64.10
64.20	1.45314	1.45293	1.45273	1.45253	1.45233	1.45213	1.45193	1.45172	1.45152	1.45132	64.20
64.30	1.45112	1.45092	1.45072	1.45051	1.45031	1.45011	1.44991	1.44971	1.44951	1.44931	64.30
64.40	1.44911	1.44891	1.44871	1.44851	1.44830	1.44810	1.44790	1.44770	1.44750	1.44730	64.40
64.50	1.44710	1.44690	1.44670	1.44650	1.44630	1.44610	1.44590	1.44570	1.44550	1.44530	64.50
64.60	1.44510	1.44491	1.44471	1.44451	1.44431	1.44411	1.44391	1.44371	1.44351	1.44331	64.60
64.70	1.44311	1.44291	1.44272	1.44252	1.44232	1.44212	1.44192	1.44172	1.44152	1.44133	64.70
64.80	1.44113	1.44093	1.44073	1.44053	1.44034	1.44014	1.43994	1.43974	1.43954	1.43935	64.80
64.90	1.43915	1.43895	1.43875	1.43856	1.43836	1.43816	1.43797	1.43777	1.43757	1.43737	64.90
65.00	1.43718	1.43698	1.43678	1.43659	1.43639	1.43619	1.43600	1.43580	1.43560	1.43541	65.00
65.10	1.43521	1.43502	1.43482	1.43462	1.43443	1.43423	1.43404	1.43384	1.43364	1.43345	65.10
65.20	1.43325	1.43306	1.43286	1.43267	1.43247	1.43228	1.43208	1.43189	1.43169	1.43150	65.20
65.30	1.43130	1.43111	1.43091	1.43072	1.43052	1.43033	1.43013	1.42994	1.42974	1.42955	65.30
65.40	1.42935	1.42916	1.42897	1.42877	1.42858	1.42838	1.42819	1.42800	1.42780	1.42761	65.40
65.50	1.42741	1.42722	1.42703	1.42683	1.42664	1.42645	1.42625	1.42606	1.42587	1.42567	65.50
65.60	1.42548	1.42529	1.42510	1.42490	1.42471	1.42452	1.42432	1.42413	1.42394	1.42375	65.60
65.70	1.42355	1.42336	1.42317	1.42298	1.42279	1.42259	1.42240	1.42221	1.42202	1.42183	65.70
65.80	1.42163	1.42144	1.42125	1.42106	1.42087	1.42068	1.42048	1.42029	1.42010	1.41991	65.80
65.90	1.41972	1.41953	1.41934	1.41915	1.41895	1.41876	1.41857	1.41838	1.41819	1.41800	65.90
66.00	1.41781	1.41762	1.41743	1.41724	1.41705	1.41686	1.41667	1.41648	1.41629	1.41610	66.00
66.10	1.41591	1.41572	1.41553	1.41534	1.41515	1.41496	1.41477	1.41458	1.41439	1.41420	66.10
66.20	1.41401	1.41382	1.41363	1.41344	1.41326	1.41307	1.41288	1.41269	1.41250	1.41231	66.20
66.30	1.41212	1.41193	1.41175	1.41156	1.41137	1.41118	1.41099	1.41080	1.41062	1.41043	66.30
66.40	1.41024	1.41005	1.40986	1.40968	1.40949	1.40930	1.40911	1.40892	1.40874	1.40855	66.40
66.50	1.40836	1.40817	1.40799	1.40780	1.40761	1.40742	1.40724	1.40705	1.40686	1.40668	66.50
66.60	1.40649	1.40630	1.40612	1.40593	1.40574	1.40556	1.40537	1.40518	1.40500	1.40481	66.60
66.70	1.40462	1.40444	1.40425	1.40407	1.40388	1.40369	1.40351	1.40332	1.40314	1.40295	66.70
66.80	1.40276	1.40258	1.40239	1.40221	1.40202	1.40184	1.40165	1.40147	1.40128	1.40110	66.80
66.90	1.40091	1.40073	1.40054	1.40036	1.40017	1.39999	1.39980	1.39962	1.39943	1.39925	66.90
67.00	1.39906	1.39888	1.39869	1.39851	1.39833	1.39814	1.39796	1.39777	1.39759	1.39741	67.00
67.10	1.39722	1.39704	1.39685	1.39667	1.39649	1.39630	1.39612	1.39594	1.39575	1.39557	67.10
67.20	1.39539	1.39520	1.39502	1.39484	1.39465	1.39447	1.39429	1.39410	1.39392	1.39374	67.20
67.30	1.39356	1.39337	1.39319	1.39301	1.39283	1.39264	1.39246	1.39228	1.39210	1.39191	67.30
67.40	1.39173	1.39155	1.39137	1.39119	1.39100	1.39082	1.39064	1.39046	1.39028	1.39010	67.40
67.50	1.38991	1.38973	1.38955	1.38937	1.38919	1.38901	1.38883	1.38865	1.38846	1.38828	67.50
67.60	1.38810	1.38792	1.38774	1.38756	1.38738	1.38720	1.38702	1.38684	1.38666	1.38648	67.60
67.70	1.38630	1.38611	1.38593	1.38575	1.38557	1.38539	1.38521	1.38503	1.38485	1.38467	67.70
67.80	1.38449	1.38431	1.38413	1.38396	1.38378	1.38360	1.38342	1.38324	1.38306	1.38288	67.80
67.90	1.38270	1.38252	1.38234	1.38216	1.38198	1.38180	1.38162	1.38145	1.38127	1.38109	67.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
68.00	1.38091	1.38073	1.38055	1.38037	1.38020	1.38002	1.37984	1.37966	1.37948	1.37930	68.00
68.10	1.37913	1.37895	1.37877	1.37859	1.37841	1.37824	1.37806	1.37788	1.37770	1.37753	68.10
68.20	1.37735	1.37717	1.37699	1.37682	1.37664	1.37646	1.37628	1.37611	1.37593	1.37575	68.20
68.30	1.37558	1.37540	1.37522	1.37504	1.37487	1.37469	1.37451	1.37434	1.37416	1.37399	68.30
68.40	1.37381	1.37363	1.37346	1.37328	1.37310	1.37293	1.37275	1.37258	1.37240	1.37222	68.40
68.50	1.37205	1.37187	1.37170	1.37152	1.37134	1.37117	1.37099	1.37082	1.37064	1.37047	68.50
68.60	1.37029	1.37012	1.36994	1.36977	1.36959	1.36942	1.36924	1.36907	1.36889	1.36872	68.60
68.70	1.36854	1.36837	1.36819	1.36802	1.36784	1.36767	1.36749	1.36732	1.36715	1.36697	68.70
68.80	1.36680	1.36662	1.36645	1.36627	1.36610	1.36593	1.36575	1.36558	1.36540	1.36523	68.80
68.90	1.36506	1.36488	1.36471	1.36454	1.36436	1.36419	1.36402	1.36384	1.36367	1.36350	68.90
69.00	1.36332	1.36315	1.36298	1.36280	1.36263	1.36246	1.36229	1.36211	1.36194	1.36177	69.00
69.10	1.36160	1.36142	1.36125	1.36108	1.36091	1.36073	1.36056	1.36039	1.36022	1.36004	69.10
69.20	1.35987	1.35970	1.35953	1.35936	1.35918	1.35901	1.35884	1.35867	1.35850	1.35833	69.20
69.30	1.35815	1.35798	1.35781	1.35764	1.35747	1.35730	1.35713	1.35696	1.35678	1.35661	69.30
69.40	1.35644	1.35627	1.35610	1.35593	1.35576	1.35559	1.35542	1.35525	1.35508	1.35491	69.40
69.50	1.35474	1.35457	1.35440	1.35422	1.35405	1.35388	1.35371	1.35354	1.35337	1.35320	69.50
69.60	1.35303	1.35286	1.35269	1.35252	1.35236	1.35219	1.35202	1.35185	1.35168	1.35151	69.60
69.70	1.35134	1.35117	1.35100	1.35083	1.35066	1.35049	1.35032	1.35015	1.34998	1.34982	69.70
69.80	1.34965	1.34948	1.34931	1.34914	1.34897	1.34880	1.34864	1.34847	1.34830	1.34813	69.80
69.90	1.34796	1.34779	1.34762	1.34746	1.34729	1.34712	1.34695	1.34678	1.34662	1.34645	69.90
70.00	1.34628	1.34611	1.34595	1.34578	1.34561	1.34544	1.34528	1.34511	1.34494	1.34477	70.00
70.10	1.34461	1.34444	1.34427	1.34410	1.34394	1.34377	1.34360	1.34344	1.34327	1.34310	70.10
70.20	1.34294	1.34277	1.34260	1.34244	1.34227	1.34210	1.34194	1.34177	1.34160	1.34144	70.20
70.30	1.34127	1.34110	1.34094	1.34077	1.34061	1.34044	1.34027	1.34011	1.33994	1.33978	70.30
70.40	1.33961	1.33945	1.33928	1.33911	1.33895	1.33878	1.33862	1.33845	1.33829	1.33812	70.40
70.50	1.33796	1.33779	1.33763	1.33746	1.33730	1.33713	1.33697	1.33680	1.33664	1.33647	70.50
70.60	1.33631	1.33614	1.33598	1.33581	1.33565	1.33548	1.33532	1.33516	1.33499	1.33483	70.60
70.70	1.33466	1.33450	1.33433	1.33417	1.33401	1.33384	1.33368	1.33351	1.33335	1.33319	70.70
70.80	1.33302	1.33286	1.33270	1.33253	1.33237	1.33220	1.33204	1.33188	1.33171	1.33155	70.80
70.90	1.33139	1.33123	1.33106	1.33090	1.33074	1.33057	1.33041	1.33025	1.33008	1.32992	70.90
71.00	1.32976	1.32960	1.32943	1.32927	1.32911	1.32895	1.32878	1.32862	1.32846	1.32830	71.00
71.10	1.32813	1.32797	1.32781	1.32765	1.32749	1.32732	1.32716	1.32700	1.32684	1.32668	71.10
71.20	1.32652	1.32635	1.32619	1.32603	1.32587	1.32571	1.32555	1.32538	1.32522	1.32506	71.20
71.30	1.32490	1.32474	1.32458	1.32442	1.32426	1.32410	1.32393	1.32377	1.32361	1.32345	71.30
71.40	1.32329	1.32313	1.32297	1.32281	1.32265	1.32249	1.32233	1.32217	1.32201	1.32185	71.40
71.50	1.32169	1.32153	1.32137	1.32121	1.32105	1.32089	1.32073	1.32057	1.32041	1.32025	71.50
71.60	1.32009	1.31993	1.31977	1.31961	1.31945	1.31929	1.31913	1.31897	1.31881	1.31865	71.60
71.70	1.31849	1.31833	1.31817	1.31801	1.31786	1.31770	1.31754	1.31738	1.31722	1.31706	71.70
71.80	1.31690	1.31674	1.31658	1.31643	1.31627	1.31611	1.31595	1.31579	1.31563	1.31548	71.80
71.90	1.31532	1.31516	1.31500	1.31484	1.31468	1.31453	1.31437	1.31421	1.31405	1.31389	71.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
72.00	1.31374	1.31358	1.31342	1.31326	1.31311	1.31295	1.31279	1.31263	1.31248	1.31232	72.00
72.10	1.31216	1.31200	1.31185	1.31169	1.31153	1.31138	1.31122	1.31106	1.31090	1.31075	72.10
72.20	1.31059	1.31043	1.31028	1.31012	1.30996	1.30981	1.30965	1.30949	1.30934	1.30918	72.20
72.30	1.30902	1.30887	1.30871	1.30856	1.30840	1.30824	1.30809	1.30793	1.30777	1.30762	72.30
72.40	1.30746	1.30731	1.30715	1.30700	1.30684	1.30668	1.30653	1.30637	1.30622	1.30606	72.40
72.50	1.30591	1.30575	1.30560	1.30544	1.30528	1.30513	1.30497	1.30482	1.30466	1.30451	72.50
72.60	1.30435	1.30420	1.30404	1.30389	1.30373	1.30358	1.30343	1.30327	1.30312	1.30296	72.60
72.70	1.30281	1.30265	1.30250	1.30234	1.30219	1.30204	1.30188	1.30173	1.30157	1.30142	72.70
72.80	1.30126	1.30111	1.30096	1.30080	1.30065	1.30050	1.30034	1.30019	1.30003	1.29988	72.80
72.90	1.29973	1.29957	1.29942	1.29927	1.29911	1.29896	1.29881	1.29865	1.29850	1.29835	72.90
73.00	1.29819	1.29804	1.29789	1.29773	1.29758	1.29743	1.29728	1.29712	1.29697	1.29682	73.00
73.10	1.29666	1.29651	1.29636	1.29621	1.29605	1.29590	1.29575	1.29560	1.29544	1.29529	73.10
73.20	1.29514	1.29499	1.29484	1.29468	1.29453	1.29438	1.29423	1.29408	1.29392	1.29377	73.20
73.30	1.29362	1.29347	1.29332	1.29317	1.29301	1.29286	1.29271	1.29256	1.29241	1.29226	73.30
73.40	1.29211	1.29195	1.29180	1.29165	1.29150	1.29135	1.29120	1.29105	1.29090	1.29075	73.40
73.50	1.29060	1.29044	1.29029	1.29014	1.28999	1.28984	1.28969	1.28954	1.28939	1.28924	73.50
73.60	1.28909	1.28894	1.28879	1.28864	1.28849	1.28834	1.28819	1.28804	1.28789	1.28774	73.60
73.70	1.28759	1.28744	1.28729	1.28714	1.28699	1.28684	1.28669	1.28654	1.28639	1.28624	73.70
73.80	1.28609	1.28594	1.28579	1.28564	1.28549	1.28534	1.28519	1.28505	1.28490	1.28475	73.80
73.90	1.28460	1.28445	1.28430	1.28415	1.28400	1.28385	1.28370	1.28356	1.28341	1.28326	73.90
74.00	1.28311	1.28296	1.28281	1.28266	1.28252	1.28237	1.28222	1.28207	1.28192	1.28177	74.00
74.10	1.28163	1.28148	1.28133	1.28118	1.28103	1.28089	1.28074	1.28059	1.28044	1.28029	74.10
74.20	1.28015	1.28000	1.27985	1.27970	1.27956	1.27941	1.27926	1.27911	1.27897	1.27882	74.20
74.30	1.27867	1.27852	1.27838	1.27823	1.27808	1.27794	1.27779	1.27764	1.27750	1.27735	74.30
74.40	1.27720	1.27705	1.27691	1.27676	1.27661	1.27647	1.27632	1.27617	1.27603	1.27588	74.40
74.50	1.27574	1.27559	1.27544	1.27530	1.27515	1.27500	1.27486	1.27471	1.27457	1.27442	74.50
74.60	1.27427	1.27413	1.27398	1.27384	1.27369	1.27354	1.27340	1.27325	1.27311	1.27296	74.60
74.70	1.27282	1.27267	1.27252	1.27238	1.27223	1.27209	1.27194	1.27180	1.27165	1.27151	74.70
74.80	1.27136	1.27122	1.27107	1.27093	1.27078	1.27064	1.27049	1.27035	1.27020	1.27006	74.80
74.90	1.26991	1.26977	1.26962	1.26948	1.26934	1.26919	1.26905	1.26890	1.26876	1.26861	74.90
75.00	1.26847	1.26832	1.26818	1.26804	1.26789	1.26775	1.26760	1.26746	1.26732	1.26717	75.00
75.10	1.26703	1.26688	1.26674	1.26660	1.26645	1.26631	1.26617	1.26602	1.26588	1.26574	75.10
75.20	1.26559	1.26545	1.26531	1.26516	1.26502	1.26488	1.26473	1.26459	1.26445	1.26430	75.20
75.30	1.26416	1.26402	1.26387	1.26373	1.26359	1.26345	1.26330	1.26316	1.26302	1.26287	75.30
75.40	1.26273	1.26259	1.26245	1.26230	1.26216	1.26202	1.26188	1.26174	1.26159	1.26145	75.40
75.50	1.26131	1.26117	1.26102	1.26088	1.26074	1.26060	1.26046	1.26031	1.26017	1.26003	75.50
75.60	1.25989	1.25975	1.25961	1.25946	1.25932	1.25918	1.25904	1.25890	1.25876	1.25862	75.60
75.70	1.25847	1.25833	1.25819	1.25805	1.25791	1.25777	1.25763	1.25749	1.25734	1.25720	75.70
75.80	1.25706	1.25692	1.25678	1.25664	1.25650	1.25636	1.25622	1.25608	1.25594	1.25580	75.80
75.90	1.25566	1.25552	1.25537	1.25523	1.25509	1.25495	1.25481	1.25467	1.25453	1.25439	75.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
76.00	1.25425	1.25411	1.25397	1.25383	1.25369	1.25355	1.25341	1.25327	1.25313	1.25299	76.00
76.10	1.25285	1.25271	1.25257	1.25243	1.25230	1.25216	1.25202	1.25188	1.25174	1.25160	76.10
76.20	1.25146	1.25132	1.25118	1.25104	1.25090	1.25076	1.25062	1.25048	1.25035	1.25021	76.20
76.30	1.25007	1.24993	1.24979	1.24965	1.24951	1.24937	1.24924	1.24910	1.24896	1.24882	76.30
76.40	1.24868	1.24854	1.24840	1.24827	1.24813	1.24799	1.24785	1.24771	1.24757	1.24744	76.40
76.50	1.24730	1.24716	1.24702	1.24688	1.24675	1.24661	1.24647	1.24633	1.24620	1.24606	76.50
76.60	1.24592	1.24578	1.24564	1.24551	1.24537	1.24523	1.24509	1.24496	1.24482	1.24468	76.60
76.70	1.24455	1.24441	1.24427	1.24413	1.24400	1.24386	1.24372	1.24359	1.24345	1.24331	76.70
76.80	1.24317	1.24304	1.24290	1.24276	1.24263	1.24249	1.24235	1.24222	1.24208	1.24194	76.80
76.90	1.24181	1.24167	1.24153	1.24140	1.24126	1.24113	1.24099	1.24085	1.24072	1.24058	76.90
77.00	1.24044	1.24031	1.24017	1.24004	1.23990	1.23976	1.23963	1.23949	1.23936	1.23922	77.00
77.10	1.23909	1.23895	1.23881	1.23868	1.23854	1.23841	1.23827	1.23814	1.23800	1.23787	77.10
77.20	1.23773	1.23760	1.23746	1.23733	1.23719	1.23705	1.23692	1.23678	1.23665	1.23651	77.20
77.30	1.23638	1.23624	1.23611	1.23598	1.23584	1.23571	1.23557	1.23544	1.23530	1.23517	77.30
77.40	1.23503	1.23490	1.23476	1.23463	1.23449	1.23436	1.23423	1.23409	1.23396	1.23382	77.40
77.50	1.23369	1.23356	1.23342	1.23329	1.23315	1.23302	1.23289	1.23275	1.23262	1.23248	77.50
77.60	1.23235	1.23222	1.23208	1.23195	1.23181	1.23168	1.23155	1.23141	1.23128	1.23115	77.60
77.70	1.23101	1.23088	1.23075	1.23061	1.23048	1.23035	1.23021	1.23008	1.22995	1.22982	77.70
77.80	1.22968	1.22955	1.22942	1.22928	1.22915	1.22902	1.22888	1.22875	1.22862	1.22849	77.80
77.90	1.22835	1.22822	1.22809	1.22796	1.22782	1.22769	1.22756	1.22743	1.22729	1.22716	77.90
78.00	1.22703	1.22690	1.22677	1.22663	1.22650	1.22637	1.22624	1.22611	1.22597	1.22584	78.00
78.10	1.22571	1.22558	1.22545	1.22531	1.22518	1.22505	1.22492	1.22479	1.22466	1.22452	78.10
78.20	1.22439	1.22426	1.22413	1.22400	1.22387	1.22374	1.22360	1.22347	1.22334	1.22321	78.20
78.30	1.22308	1.22295	1.22282	1.22269	1.22256	1.22242	1.22229	1.22216	1.22203	1.22190	78.30
78.40	1.22177	1.22164	1.22151	1.22138	1.22125	1.22112	1.22099	1.22086	1.22073	1.22060	78.40
78.50	1.22047	1.22034	1.22020	1.22007	1.21994	1.21981	1.21968	1.21955	1.21942	1.21929	78.50
78.60	1.21916	1.21903	1.21890	1.21877	1.21864	1.21851	1.21838	1.21825	1.21813	1.21800	78.60
78.70	1.21787	1.21774	1.21761	1.21748	1.21735	1.21722	1.21709	1.21696	1.21683	1.21670	78.70
78.80	1.21657	1.21644	1.21631	1.21618	1.21605	1.21593	1.21580	1.21567	1.21554	1.21541	78.80
78.90	1.21528	1.21515	1.21502	1.21489	1.21477	1.21464	1.21451	1.21438	1.21425	1.21412	78.90
79.00	1.21399	1.21387	1.21374	1.21361	1.21348	1.21335	1.21322	1.21310	1.21297	1.21284	79.00
79.10	1.21271	1.21258	1.21245	1.21233	1.21220	1.21207	1.21194	1.21181	1.21169	1.21156	79.10
79.20	1.21143	1.21130	1.21118	1.21105	1.21092	1.21079	1.21066	1.21054	1.21041	1.21028	79.20
79.30	1.21015	1.21003	1.20990	1.20977	1.20965	1.20952	1.20939	1.20926	1.20914	1.20901	79.30
79.40	1.20888	1.20876	1.20863	1.20850	1.20837	1.20825	1.20812	1.20799	1.20787	1.20774	79.40
79.50	1.20761	1.20749	1.20736	1.20723	1.20711	1.20698	1.20685	1.20673	1.20660	1.20647	79.50
79.60	1.20635	1.20622	1.20610	1.20597	1.20584	1.20572	1.20559	1.20546	1.20534	1.20521	79.60
79.70	1.20509	1.20496	1.20483	1.20471	1.20458	1.20446	1.20433	1.20421	1.20408	1.20395	79.70
79.80	1.20383	1.20370	1.20358	1.20345	1.20333	1.20320	1.20307	1.20295	1.20282	1.20270	79.80
79.90	1.20257	1.20245	1.20232	1.20220	1.20207	1.20195	1.20182	1.20170	1.20157	1.20145	79.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
80.00	1.20132	1.20120	1.20107	1.20095	1.20082	1.20070	1.20057	1.20045	1.20032	1.20020	80.00
80.10	1.20007	1.19995	1.19983	1.19970	1.19958	1.19945	1.19933	1.19920	1.19908	1.19895	80.10
80.20	1.19883	1.19871	1.19858	1.19846	1.19833	1.19821	1.19809	1.19796	1.19784	1.19771	80.20
80.30	1.19759	1.19747	1.19734	1.19722	1.19709	1.19697	1.19685	1.19672	1.19660	1.19648	80.30
80.40	1.19635	1.19623	1.19611	1.19598	1.19586	1.19574	1.19561	1.19549	1.19537	1.19524	80.40
80.50	1.19512	1.19500	1.19487	1.19475	1.19463	1.19450	1.19438	1.19426	1.19413	1.19401	80.50
80.60	1.19389	1.19377	1.19364	1.19352	1.19340	1.19327	1.19315	1.19303	1.19291	1.19278	80.60
80.70	1.19266	1.19254	1.19242	1.19229	1.19217	1.19205	1.19193	1.19181	1.19168	1.19156	80.70
80.80	1.19144	1.19132	1.19119	1.19107	1.19095	1.19083	1.19071	1.19058	1.19046	1.19034	80.80
80.90	1.19022	1.19010	1.18997	1.18985	1.18973	1.18961	1.18949	1.18937	1.18924	1.18912	80.90
81.00	1.18900	1.18888	1.18876	1.18864	1.18852	1.18839	1.18827	1.18815	1.18803	1.18791	81.00
81.10	1.18779	1.18767	1.18755	1.18743	1.18730	1.18718	1.18706	1.18694	1.18682	1.18670	81.10
81.20	1.18658	1.18646	1.18634	1.18622	1.18610	1.18598	1.18585	1.18573	1.18561	1.18549	81.20
81.30	1.18537	1.18525	1.18513	1.18501	1.18489	1.18477	1.18465	1.18453	1.18441	1.18429	81.30
81.40	1.18417	1.18405	1.18393	1.18381	1.18369	1.18357	1.18345	1.18333	1.18321	1.18309	81.40
81.50	1.18297	1.18285	1.18273	1.18261	1.18249	1.18237	1.18225	1.18213	1.18201	1.18189	81.50
81.60	1.18177	1.18165	1.18153	1.18141	1.18130	1.18118	1.18106	1.18094	1.18082	1.18070	81.60
81.70	1.18058	1.18046	1.18034	1.18022	1.18010	1.17998	1.17987	1.17975	1.17963	1.17951	81.70
81.80	1.17939	1.17927	1.17915	1.17903	1.17892	1.17880	1.17868	1.17856	1.17844	1.17832	81.80
81.90	1.17820	1.17809	1.17797	1.17785	1.17773	1.17761	1.17749	1.17738	1.17726	1.17714	81.90
82.00	1.17702	1.17690	1.17678	1.17667	1.17655	1.17643	1.17631	1.17619	1.17608	1.17596	82.00
82.10	1.17584	1.17572	1.17561	1.17549	1.17537	1.17525	1.17513	1.17502	1.17490	1.17478	82.10
82.20	1.17466	1.17455	1.17443	1.17431	1.17419	1.17408	1.17396	1.17384	1.17372	1.17361	82.20
82.30	1.17349	1.17337	1.17326	1.17314	1.17302	1.17290	1.17279	1.17267	1.17255	1.17244	82.30
82.40	1.17232	1.17220	1.17209	1.17197	1.17185	1.17174	1.17162	1.17150	1.17139	1.17127	82.40
82.50	1.17115	1.17104	1.17092	1.17080	1.17069	1.17057	1.17045	1.17034	1.17022	1.17011	82.50
82.60	1.16999	1.16987	1.16976	1.16964	1.16952	1.16941	1.16929	1.16918	1.16906	1.16894	82.60
82.70	1.16883	1.16871	1.16860	1.16848	1.16837	1.16825	1.16813	1.16802	1.16790	1.16779	82.70
82.80	1.16767	1.16756	1.16744	1.16732	1.16721	1.16709	1.16698	1.16686	1.16675	1.16663	82.80
82.90	1.16652	1.16640	1.16629	1.16617	1.16606	1.16594	1.16583	1.16571	1.16560	1.16548	82.90
83.00	1.16537	1.16525	1.16514	1.16502	1.16491	1.16479	1.16468	1.16456	1.16445	1.16433	83.00
83.10	1.16422	1.16410	1.16399	1.16387	1.16376	1.16365	1.16353	1.16342	1.16330	1.16319	83.10
83.20	1.16307	1.16296	1.16284	1.16273	1.16262	1.16250	1.16239	1.16227	1.16216	1.16205	83.20
83.30	1.16193	1.16182	1.16170	1.16159	1.16148	1.16136	1.16125	1.16113	1.16102	1.16091	83.30
83.40	1.16079	1.16068	1.16057	1.16045	1.16034	1.16023	1.16011	1.16000	1.15988	1.15977	83.40
83.50	1.15966	1.15954	1.15943	1.15932	1.15920	1.15909	1.15898	1.15887	1.15875	1.15864	83.50
83.60	1.15853	1.15841	1.15830	1.15819	1.15807	1.15796	1.15785	1.15773	1.15762	1.15751	83.60
83.70	1.15740	1.15728	1.15717	1.15706	1.15695	1.15683	1.15672	1.15661	1.15650	1.15638	83.70
83.80	1.15627	1.15616	1.15605	1.15593	1.15582	1.15571	1.15560	1.15548	1.15537	1.15526	83.80
83.90	1.15515	1.15504	1.15492	1.15481	1.15470	1.15459	1.15447	1.15436	1.15425	1.15414	83.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
84.00	1.15403	1.15392	1.15380	1.15369	1.15358	1.15347	1.15336	1.15325	1.15313	1.15302	84.00
84.10	1.15291	1.15280	1.15269	1.15258	1.15246	1.15235	1.15224	1.15213	1.15202	1.15191	84.10
84.20	1.15180	1.15169	1.15157	1.15146	1.15135	1.15124	1.15113	1.15102	1.15091	1.15080	84.20
84.30	1.15069	1.15057	1.15046	1.15035	1.15024	1.15013	1.15002	1.14991	1.14980	1.14969	84.30
84.40	1.14958	1.14947	1.14936	1.14925	1.14914	1.14902	1.14891	1.14880	1.14869	1.14858	84.40
84.50	1.14847	1.14836	1.14825	1.14814	1.14803	1.14792	1.14781	1.14770	1.14759	1.14748	84.50
84.60	1.14737	1.14726	1.14715	1.14704	1.14693	1.14682	1.14671	1.14660	1.14649	1.14638	84.60
84.70	1.14627	1.14616	1.14605	1.14594	1.14583	1.14572	1.14561	1.14550	1.14540	1.14529	84.70
84.80	1.14518	1.14507	1.14496	1.14485	1.14474	1.14463	1.14452	1.14441	1.14430	1.14419	84.80
84.90	1.14408	1.14397	1.14386	1.14376	1.14365	1.14354	1.14343	1.14332	1.14321	1.14310	84.90
85.00	1.14299	1.14288	1.14278	1.14267	1.14256	1.14245	1.14234	1.14223	1.14212	1.14201	85.00
85.10	1.14191	1.14180	1.14169	1.14158	1.14147	1.14136	1.14126	1.14115	1.14104	1.14093	85.10
85.20	1.14082	1.14071	1.14061	1.14050	1.14039	1.14028	1.14017	1.14006	1.13996	1.13985	85.20
85.30	1.13974	1.13963	1.13952	1.13942	1.13931	1.13920	1.13909	1.13899	1.13888	1.13877	85.30
85.40	1.13866	1.13855	1.13845	1.13834	1.13823	1.13812	1.13802	1.13791	1.13780	1.13769	85.40
85.50	1.13759	1.13748	1.13737	1.13727	1.13716	1.13705	1.13694	1.13684	1.13673	1.13662	85.50
85.60	1.13651	1.13641	1.13630	1.13619	1.13609	1.13598	1.13587	1.13577	1.13566	1.13555	85.60
85.70	1.13545	1.13534	1.13523	1.13512	1.13502	1.13491	1.13480	1.13470	1.13459	1.13448	85.70
85.80	1.13438	1.13427	1.13417	1.13406	1.13395	1.13385	1.13374	1.13363	1.13353	1.13342	85.80
85.90	1.13331	1.13321	1.13310	1.13300	1.13289	1.13278	1.13268	1.13257	1.13247	1.13236	85.90
86.00	1.13225	1.13215	1.13204	1.13194	1.13183	1.13172	1.13162	1.13151	1.13141	1.13130	86.00
86.10	1.13120	1.13109	1.13098	1.13088	1.13077	1.13067	1.13056	1.13046	1.13035	1.13025	86.10
86.20	1.13014	1.13003	1.12993	1.12982	1.12972	1.12961	1.12951	1.12940	1.12930	1.12919	86.20
86.30	1.12909	1.12898	1.12888	1.12877	1.12867	1.12856	1.12846	1.12835	1.12825	1.12814	86.30
86.40	1.12804	1.12793	1.12783	1.12772	1.12762	1.12751	1.12741	1.12730	1.12720	1.12710	86.40
86.50	1.12699	1.12689	1.12678	1.12668	1.12657	1.12647	1.12636	1.12626	1.12616	1.12605	86.50
86.60	1.12595	1.12584	1.12574	1.12563	1.12553	1.12543	1.12532	1.12522	1.12511	1.12501	86.60
86.70	1.12491	1.12480	1.12470	1.12459	1.12449	1.12439	1.12428	1.12418	1.12407	1.12397	86.70
86.80	1.12387	1.12376	1.12366	1.12356	1.12345	1.12335	1.12325	1.12314	1.12304	1.12293	86.80
86.90	1.12283	1.12273	1.12262	1.12252	1.12242	1.12231	1.12221	1.12211	1.12200	1.12190	86.90
87.00	1.12180	1.12170	1.12159	1.12149	1.12139	1.12128	1.12118	1.12108	1.12097	1.12087	87.00
87.10	1.12077	1.12067	1.12056	1.12046	1.12036	1.12025	1.12015	1.12005	1.11995	1.11984	87.10
87.20	1.11974	1.11964	1.11954	1.11943	1.11933	1.11923	1.11913	1.11902	1.11892	1.11882	87.20
87.30	1.11872	1.11861	1.11851	1.11841	1.11831	1.11820	1.11810	1.11800	1.11790	1.11780	87.30
87.40	1.11769	1.11759	1.11749	1.11739	1.11729	1.11718	1.11708	1.11698	1.11688	1.11678	87.40
87.50	1.11667	1.11657	1.11647	1.11637	1.11627	1.11617	1.11606	1.11596	1.11586	1.11576	87.50
87.60	1.11566	1.11556	1.11545	1.11535	1.11525	1.11515	1.11505	1.11495	1.11485	1.11475	87.60
87.70	1.11464	1.11454	1.11444	1.11434	1.11424	1.11414	1.11404	1.11394	1.11383	1.11373	87.70
87.80	1.11363	1.11353	1.11343	1.11333	1.11323	1.11313	1.11303	1.11293	1.11283	1.11272	87.80
87.90	1.11262	1.11252	1.11242	1.11232	1.11222	1.11212	1.11202	1.11192	1.11182	1.11172	87.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
88.00	1.11162	1.11152	1.11142	1.11132	1.11122	1.11112	1.11102	1.11092	1.11082	1.11072	88.00
88.10	1.11062	1.11051	1.11041	1.11031	1.11021	1.11011	1.11001	1.10991	1.10981	1.10971	88.10
88.20	1.10961	1.10951	1.10941	1.10931	1.10922	1.10912	1.10902	1.10892	1.10882	1.10872	88.20
88.30	1.10862	1.10852	1.10842	1.10832	1.10822	1.10812	1.10802	1.10792	1.10782	1.10772	88.30
88.40	1.10762	1.10752	1.10742	1.10732	1.10722	1.10712	1.10703	1.10693	1.10683	1.10673	88.40
88.50	1.10663	1.10653	1.10643	1.10633	1.10623	1.10613	1.10603	1.10594	1.10584	1.10574	88.50
88.60	1.10564	1.10554	1.10544	1.10534	1.10524	1.10514	1.10505	1.10495	1.10485	1.10475	88.60
88.70	1.10465	1.10455	1.10445	1.10436	1.10426	1.10416	1.10406	1.10396	1.10386	1.10376	88.70
88.80	1.10367	1.10357	1.10347	1.10337	1.10327	1.10318	1.10308	1.10298	1.10288	1.10278	88.80
88.90	1.10268	1.10259	1.10249	1.10239	1.10229	1.10219	1.10210	1.10200	1.10190	1.10180	88.90
89.00	1.10170	1.10161	1.10151	1.10141	1.10131	1.10122	1.10112	1.10102	1.10092	1.10083	89.00
89.10	1.10073	1.10063	1.10053	1.10043	1.10034	1.10024	1.10014	1.10005	1.09995	1.09985	89.10
89.20	1.09975	1.09966	1.09956	1.09946	1.09936	1.09927	1.09917	1.09907	1.09898	1.09888	89.20
89.30	1.09878	1.09868	1.09859	1.09849	1.09839	1.09830	1.09820	1.09810	1.09801	1.09791	89.30
89.40	1.09781	1.09771	1.09762	1.09752	1.09742	1.09733	1.09723	1.09713	1.09704	1.09694	89.40
89.50	1.09684	1.09675	1.09665	1.09656	1.09646	1.09636	1.09627	1.09617	1.09607	1.09598	89.50
89.60	1.09588	1.09578	1.09569	1.09559	1.09550	1.09540	1.09530	1.09521	1.09511	1.09501	89.60
89.70	1.09492	1.09482	1.09473	1.09463	1.09453	1.09444	1.09434	1.09425	1.09415	1.09406	89.70
89.80	1.09396	1.09386	1.09377	1.09367	1.09358	1.09348	1.09339	1.09329	1.09319	1.09310	89.80
89.90	1.09300	1.09291	1.09281	1.09272	1.09262	1.09253	1.09243	1.09233	1.09224	1.09214	89.90
90.00	1.09205	1.09195	1.09186	1.09176	1.09167	1.09157	1.09148	1.09138	1.09129	1.09119	90.00
90.10	1.09110	1.09100	1.09091	1.09081	1.09072	1.09062	1.09053	1.09043	1.09034	1.09024	90.10
90.20	1.09015	1.09005	1.08996	1.08986	1.08977	1.08967	1.08958	1.08948	1.08939	1.08930	90.20
90.30	1.08920	1.08911	1.08901	1.08892	1.08882	1.08873	1.08863	1.08854	1.08845	1.08835	90.30
90.40	1.08826	1.08816	1.08807	1.08797	1.08788	1.08779	1.08769	1.08760	1.08750	1.08741	90.40
90.50	1.08731	1.08722	1.08713	1.08703	1.08694	1.08684	1.08675	1.08666	1.08656	1.08647	90.50
90.60	1.08638	1.08628	1.08619	1.08609	1.08600	1.08591	1.08581	1.08572	1.08563	1.08553	90.60
90.70	1.08544	1.08534	1.08525	1.08516	1.08506	1.08497	1.08488	1.08478	1.08469	1.08460	90.70
90.80	1.08450	1.08441	1.08432	1.08422	1.08413	1.08404	1.08394	1.08385	1.08376	1.08366	90.80
90.90	1.08357	1.08348	1.08339	1.08329	1.08320	1.08311	1.08301	1.08292	1.08283	1.08274	90.90
91.00	1.08264	1.08255	1.08246	1.08236	1.08227	1.08218	1.08209	1.08199	1.08190	1.08181	91.00
91.10	1.08171	1.08162	1.08153	1.08144	1.08134	1.08125	1.08116	1.08107	1.08097	1.08088	91.10
91.20	1.08079	1.08070	1.08061	1.08051	1.08042	1.08033	1.08024	1.08014	1.08005	1.07996	91.20
91.30	1.07987	1.07978	1.07968	1.07959	1.07950	1.07941	1.07932	1.07922	1.07913	1.07904	91.30
91.40	1.07895	1.07886	1.07876	1.07867	1.07858	1.07849	1.07840	1.07831	1.07821	1.07812	91.40
91.50	1.07803	1.07794	1.07785	1.07776	1.07766	1.07757	1.07748	1.07739	1.07730	1.07721	91.50
91.60	1.07711	1.07702	1.07693	1.07684	1.07675	1.07666	1.07657	1.07648	1.07638	1.07629	91.60
91.70	1.07620	1.07611	1.07602	1.07593	1.07584	1.07575	1.07566	1.07556	1.07547	1.07538	91.70
91.80	1.07529	1.07520	1.07511	1.07502	1.07493	1.07484	1.07475	1.07466	1.07456	1.07447	91.80
91.90	1.07438	1.07429	1.07420	1.07411	1.07402	1.07393	1.07384	1.07375	1.07366	1.07357	91.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
92.00	1.07348	1.07339	1.07330	1.07321	1.07312	1.07303	1.07294	1.07284	1.07275	1.07266	92.00
92.10	1.07257	1.07248	1.07239	1.07230	1.07221	1.07212	1.07203	1.07194	1.07185	1.07176	92.10
92.20	1.07167	1.07158	1.07149	1.07140	1.07131	1.07122	1.07113	1.07104	1.07095	1.07086	92.20
92.30	1.07077	1.07068	1.07059	1.07050	1.07042	1.07033	1.07024	1.07015	1.07006	1.06997	92.30
92.40	1.06988	1.06979	1.06970	1.06961	1.06952	1.06943	1.06934	1.06925	1.06916	1.06907	92.40
92.50	1.06898	1.06889	1.06880	1.06872	1.06863	1.06854	1.06845	1.06836	1.06827	1.06818	92.50
92.60	1.06809	1.06800	1.06791	1.06782	1.06774	1.06765	1.06756	1.06747	1.06738	1.06729	92.60
92.70	1.06720	1.06711	1.06702	1.06694	1.06685	1.06676	1.06667	1.06658	1.06649	1.06640	92.70
92.80	1.06631	1.06623	1.06614	1.06605	1.06596	1.06587	1.06578	1.06569	1.06561	1.06552	92.80
92.90	1.06543	1.06534	1.06525	1.06516	1.06508	1.06499	1.06490	1.06481	1.06472	1.06464	92.90
93.00	1.06455	1.06446	1.06437	1.06428	1.06419	1.06411	1.06402	1.06393	1.06384	1.06375	93.00
93.10	1.06367	1.06358	1.06349	1.06340	1.06331	1.06323	1.06314	1.06305	1.06296	1.06288	93.10
93.20	1.06279	1.06270	1.06261	1.06253	1.06244	1.06235	1.06226	1.06217	1.06209	1.06200	93.20
93.30	1.06191	1.06182	1.06174	1.06165	1.06156	1.06148	1.06139	1.06130	1.06121	1.06113	93.30
93.40	1.06104	1.06095	1.06086	1.06078	1.06069	1.06060	1.06052	1.06043	1.06034	1.06025	93.40
93.50	1.06017	1.06008	1.05999	1.05991	1.05982	1.05973	1.05965	1.05956	1.05947	1.05938	93.50
93.60	1.05930	1.05921	1.05912	1.05904	1.05895	1.05886	1.05878	1.05869	1.05860	1.05852	93.60
93.70	1.05843	1.05834	1.05826	1.05817	1.05808	1.05800	1.05791	1.05783	1.05774	1.05765	93.70
93.80	1.05757	1.05748	1.05739	1.05731	1.05722	1.05713	1.05705	1.05696	1.05688	1.05679	93.80
93.90	1.05670	1.05662	1.05653	1.05645	1.05636	1.05627	1.05619	1.05610	1.05602	1.05593	93.90
94.00	1.05584	1.05576	1.05567	1.05559	1.05550	1.05541	1.05533	1.05524	1.05516	1.05507	94.00
94.10	1.05499	1.05490	1.05481	1.05473	1.05464	1.05456	1.05447	1.05439	1.05430	1.05421	94.10
94.20	1.05413	1.05404	1.05396	1.05387	1.05379	1.05370	1.05362	1.05353	1.05345	1.05336	94.20
94.30	1.05328	1.05319	1.05311	1.05302	1.05293	1.05285	1.05276	1.05268	1.05259	1.05251	94.30
94.40	1.05242	1.05234	1.05225	1.05217	1.05208	1.05200	1.05191	1.05183	1.05174	1.05166	94.40
94.50	1.05157	1.05149	1.05141	1.05132	1.05124	1.05115	1.05107	1.05098	1.05090	1.05081	94.50
94.60	1.05073	1.05064	1.05056	1.05047	1.05039	1.05030	1.05022	1.05014	1.05005	1.04997	94.60
94.70	1.04988	1.04980	1.04971	1.04963	1.04955	1.04946	1.04938	1.04929	1.04921	1.04912	94.70
94.80	1.04904	1.04896	1.04887	1.04879	1.04870	1.04862	1.04853	1.04845	1.04837	1.04828	94.80
94.90	1.04820	1.04811	1.04803	1.04795	1.04786	1.04778	1.04770	1.04761	1.04753	1.04744	94.90
95.00	1.04736	1.04728	1.04719	1.04711	1.04703	1.04694	1.04686	1.04677	1.04669	1.04661	95.00
95.10	1.04652	1.04644	1.04636	1.04627	1.04619	1.04611	1.04602	1.04594	1.04586	1.04577	95.10
95.20	1.04569	1.04561	1.04552	1.04544	1.04536	1.04527	1.04519	1.04511	1.04502	1.04494	95.20
95.30	1.04486	1.04477	1.04469	1.04461	1.04453	1.04444	1.04436	1.04428	1.04419	1.04411	95.30
95.40	1.04403	1.04394	1.04386	1.04378	1.04370	1.04361	1.04353	1.04345	1.04336	1.04328	95.40
95.50	1.04320	1.04312	1.04303	1.04295	1.04287	1.04279	1.04270	1.04262	1.04254	1.04246	95.50
95.60	1.04237	1.04229	1.04221	1.04213	1.04204	1.04196	1.04188	1.04180	1.04171	1.04163	95.60
95.70	1.04155	1.04147	1.04139	1.04130	1.04122	1.04114	1.04106	1.04097	1.04089	1.04081	95.70
95.80	1.04073	1.04065	1.04056	1.04048	1.04040	1.04032	1.04024	1.04015	1.04007	1.03999	95.80
95.90	1.03991	1.03983	1.03974	1.03966	1.03958	1.03950	1.03942	1.03934	1.03925	1.03917	95.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
96.00	1.03909	1.03901	1.03893	1.03885	1.03876	1.03868	1.03860	1.03852	1.03844	1.03836	96.00
96.10	1.03828	1.03819	1.03811	1.03803	1.03795	1.03787	1.03779	1.03771	1.03762	1.03754	96.10
96.20	1.03746	1.03738	1.03730	1.03722	1.03714	1.03706	1.03698	1.03689	1.03681	1.03673	96.20
96.30	1.03665	1.03657	1.03649	1.03641	1.03633	1.03625	1.03616	1.03608	1.03600	1.03592	96.30
96.40	1.03584	1.03576	1.03568	1.03560	1.03552	1.03544	1.03536	1.03528	1.03520	1.03511	96.40
96.50	1.03503	1.03495	1.03487	1.03479	1.03471	1.03463	1.03455	1.03447	1.03439	1.03431	96.50
96.60	1.03423	1.03415	1.03407	1.03399	1.03391	1.03383	1.03375	1.03367	1.03359	1.03351	96.60
96.70	1.03343	1.03335	1.03327	1.03319	1.03311	1.03303	1.03295	1.03287	1.03279	1.03271	96.70
96.80	1.03262	1.03254	1.03247	1.03239	1.03231	1.03223	1.03215	1.03207	1.03199	1.03191	96.80
96.90	1.03183	1.03175	1.03167	1.03159	1.03151	1.03143	1.03135	1.03127	1.03119	1.03111	96.90
97.00	1.03103	1.03095	1.03087	1.03079	1.03071	1.03063	1.03055	1.03047	1.03039	1.03031	97.00
97.10	1.03023	1.03015	1.03008	1.03000	1.02992	1.02984	1.02976	1.02968	1.02960	1.02952	97.10
97.20	1.02944	1.02936	1.02928	1.02920	1.02912	1.02905	1.02897	1.02889	1.02881	1.02873	97.20
97.30	1.02865	1.02857	1.02849	1.02841	1.02833	1.02826	1.02818	1.02810	1.02802	1.02794	97.30
97.40	1.02786	1.02778	1.02770	1.02762	1.02755	1.02747	1.02739	1.02731	1.02723	1.02715	97.40
97.50	1.02707	1.02700	1.02692	1.02684	1.02676	1.02668	1.02660	1.02652	1.02645	1.02637	97.50
97.60	1.02629	1.02621	1.02613	1.02605	1.02598	1.02590	1.02582	1.02574	1.02566	1.02558	97.60
97.70	1.02551	1.02543	1.02535	1.02527	1.02519	1.02511	1.02504	1.02496	1.02488	1.02480	97.70
97.80	1.02472	1.02465	1.02457	1.02449	1.02441	1.02433	1.02426	1.02418	1.02410	1.02402	97.80
97.90	1.02395	1.02387	1.02379	1.02371	1.02363	1.02356	1.02348	1.02340	1.02332	1.02325	97.90
98.00	1.02317	1.02309	1.02301	1.02294	1.02286	1.02278	1.02270	1.02263	1.02255	1.02247	98.00
98.10	1.02239	1.02232	1.02224	1.02216	1.02208	1.02201	1.02193	1.02185	1.02177	1.02170	98.10
98.20	1.02162	1.02154	1.02147	1.02139	1.02131	1.02123	1.02116	1.02108	1.02100	1.02093	98.20
98.30	1.02085	1.02077	1.02069	1.02062	1.02054	1.02046	1.02039	1.02031	1.02023	1.02016	98.30
98.40	1.02008	1.02000	1.01993	1.01985	1.01977	1.01970	1.01962	1.01954	1.01947	1.01939	98.40
98.50	1.01931	1.01924	1.01916	1.01908	1.01901	1.01893	1.01885	1.01878	1.01870	1.01862	98.50
98.60	1.01855	1.01847	1.01839	1.01832	1.01824	1.01816	1.01809	1.01801	1.01794	1.01786	98.60
98.70	1.01778	1.01771	1.01763	1.01755	1.01748	1.01740	1.01733	1.01725	1.01717	1.01710	98.70
98.80	1.01702	1.01695	1.01687	1.01679	1.01672	1.01664	1.01657	1.01649	1.01641	1.01634	98.80
98.90	1.01626	1.01619	1.01611	1.01603	1.01596	1.01588	1.01581	1.01573	1.01566	1.01558	98.90
99.00	1.01550	1.01543	1.01535	1.01528	1.01520	1.01513	1.01505	1.01497	1.01490	1.01482	99.00
99.10	1.01475	1.01467	1.01460	1.01452	1.01445	1.01437	1.01430	1.01422	1.01414	1.01407	99.10
99.20	1.01399	1.01392	1.01384	1.01377	1.01369	1.01362	1.01354	1.01347	1.01339	1.01332	99.20
99.30	1.01324	1.01317	1.01309	1.01302	1.01294	1.01287	1.01279	1.01272	1.01264	1.01257	99.30
99.40	1.01249	1.01242	1.01234	1.01227	1.01219	1.01212	1.01204	1.01197	1.01189	1.01182	99.40
99.50	1.01174	1.01167	1.01159	1.01152	1.01144	1.01137	1.01129	1.01122	1.01115	1.01107	99.50
99.60	1.01100	1.01092	1.01085	1.01077	1.01070	1.01062	1.01055	1.01047	1.01040	1.01033	99.60
99.70	1.01025	1.01018	1.01010	1.01003	1.00995	1.00988	1.00981	1.00973	1.00966	1.00958	99.70
99.80	1.00951	1.00943	1.00936	1.00929	1.00921	1.00914	1.00906	1.00899	1.00892	1.00884	99.80
99.90	1.00877	1.00869	1.00862	1.00855	1.00847	1.00840	1.00832	1.00825	1.00818	1.00810	99.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
100.00	1.00803	1.00796	1.00788	1.00781	1.00773	1.00766	1.00759	1.00751	1.00744	1.00737	100.00
100.10	1.00729	1.00722	1.00714	1.00707	1.00700	1.00692	1.00685	1.00678	1.00670	1.00663	100.10
100.20	1.00656	1.00648	1.00641	1.00634	1.00626	1.00619	1.00612	1.00604	1.00597	1.00590	100.20
100.30	1.00582	1.00575	1.00568	1.00560	1.00553	1.00546	1.00538	1.00531	1.00524	1.00516	100.30
100.40	1.00509	1.00502	1.00495	1.00487	1.00480	1.00473	1.00465	1.00458	1.00451	1.00443	100.40
100.50	1.00436	1.00429	1.00422	1.00414	1.00407	1.00400	1.00392	1.00385	1.00378	1.00371	100.50
100.60	1.00363	1.00356	1.00349	1.00342	1.00334	1.00327	1.00320	1.00312	1.00305	1.00298	100.60
100.70	1.00291	1.00283	1.00276	1.00269	1.00262	1.00254	1.00247	1.00240	1.00233	1.00226	100.70
100.80	1.00218	1.00211	1.00204	1.00197	1.00189	1.00182	1.00175	1.00168	1.00160	1.00153	100.80
100.90	1.00146	1.00139	1.00132	1.00124	1.00117	1.00110	1.00103	1.00096	1.00088	1.00081	100.90
101.00	1.00074	1.00067	1.00060	1.00052	1.00045	1.00038	1.00031	1.00024	1.00016	1.00009	101.00
101.10	1.00002	0.99995	0.99988	0.99980	0.99973	0.99966	0.99959	0.99952	0.99945	0.99937	101.10
101.20	0.99930	0.99923	0.99916	0.99909	0.99902	0.99895	0.99887	0.99880	0.99873	0.99866	101.20
101.30	0.99859	0.99852	0.99844	0.99837	0.99830	0.99823	0.99816	0.99809	0.99802	0.99795	101.30
101.40	0.99787	0.99780	0.99773	0.99766	0.99759	0.99752	0.99745	0.99738	0.99730	0.99723	101.40
101.50	0.99716	0.99709	0.99702	0.99695	0.99688	0.99681	0.99674	0.99666	0.99659	0.99652	101.50
101.60	0.99645	0.99638	0.99631	0.99624	0.99617	0.99610	0.99603	0.99596	0.99589	0.99581	101.60
101.70	0.99574	0.99567	0.99560	0.99553	0.99546	0.99539	0.99532	0.99525	0.99518	0.99511	101.70
101.80	0.99504	0.99497	0.99490	0.99483	0.99476	0.99468	0.99461	0.99454	0.99447	0.99440	101.80
101.90	0.99433	0.99426	0.99419	0.99412	0.99405	0.99398	0.99391	0.99384	0.99377	0.99370	101.90
102.00	0.99363	0.99356	0.99349	0.99342	0.99335	0.99328	0.99321	0.99314	0.99307	0.99300	102.00
102.10	0.99293	0.99286	0.99279	0.99272	0.99265	0.99258	0.99251	0.99244	0.99237	0.99230	102.10
102.20	0.99223	0.99216	0.99209	0.99202	0.99195	0.99188	0.99181	0.99174	0.99167	0.99160	102.20
102.30	0.99153	0.99146	0.99139	0.99132	0.99125	0.99118	0.99111	0.99104	0.99097	0.99090	102.30
102.40	0.99083	0.99077	0.99070	0.99063	0.99056	0.99049	0.99042	0.99035	0.99028	0.99021	102.40
102.50	0.99014	0.99007	0.99000	0.98993	0.98986	0.98979	0.98972	0.98966	0.98959	0.98952	102.50
102.60	0.98945	0.98938	0.98931	0.98924	0.98917	0.98910	0.98903	0.98896	0.98889	0.98883	102.60
102.70	0.98876	0.98869	0.98862	0.98855	0.98848	0.98841	0.98834	0.98827	0.98821	0.98814	102.70
102.80	0.98807	0.98800	0.98793	0.98786	0.98779	0.98772	0.98765	0.98759	0.98752	0.98745	102.80
102.90	0.98738	0.98731	0.98724	0.98717	0.98711	0.98704	0.98697	0.98690	0.98683	0.98676	102.90
103.00	0.98669	0.98663	0.98656	0.98649	0.98642	0.98635	0.98628	0.98622	0.98615	0.98608	103.00
103.10	0.98601	0.98594	0.98587	0.98581	0.98574	0.98567	0.98560	0.98553	0.98546	0.98540	103.10
103.20	0.98533	0.98526	0.98519	0.98512	0.98506	0.98499	0.98492	0.98485	0.98478	0.98472	103.20
103.30	0.98465	0.98458	0.98451	0.98444	0.98438	0.98431	0.98424	0.98417	0.98410	0.98404	103.30
103.40	0.98397	0.98390	0.98383	0.98376	0.98370	0.98363	0.98356	0.98349	0.98343	0.98336	103.40
103.50	0.98329	0.98322	0.98316	0.98309	0.98302	0.98295	0.98289	0.98282	0.98275	0.98268	103.50
103.60	0.98262	0.98255	0.98248	0.98241	0.98235	0.98228	0.98221	0.98214	0.98208	0.98201	103.60
103.70	0.98194	0.98187	0.98181	0.98174	0.98167	0.98161	0.98154	0.98147	0.98140	0.98134	103.70
103.80	0.98127	0.98120	0.98113	0.98107	0.98100	0.98093	0.98087	0.98080	0.98073	0.98067	103.80
103.90	0.98060	0.98053	0.98046	0.98040	0.98033	0.98026	0.98020	0.98013	0.98006	0.98000	103.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
104.00	0.97993	0.97986	0.97980	0.97973	0.97966	0.97960	0.97953	0.97946	0.97940	0.97933	104.00
104.10	0.97926	0.97920	0.97913	0.97906	0.97900	0.97893	0.97886	0.97880	0.97873	0.97866	104.10
104.20	0.97860	0.97853	0.97846	0.97840	0.97833	0.97826	0.97820	0.97813	0.97807	0.97800	104.20
104.30	0.97793	0.97787	0.97780	0.97773	0.97767	0.97760	0.97754	0.97747	0.97740	0.97734	104.30
104.40	0.97727	0.97720	0.97714	0.97707	0.97701	0.97694	0.97687	0.97681	0.97674	0.97668	104.40
104.50	0.97661	0.97654	0.97648	0.97641	0.97635	0.97628	0.97621	0.97615	0.97608	0.97602	104.50
104.60	0.97595	0.97588	0.97582	0.97575	0.97569	0.97562	0.97556	0.97549	0.97542	0.97536	104.60
104.70	0.97529	0.97523	0.97516	0.97510	0.97503	0.97496	0.97490	0.97483	0.97477	0.97470	104.70
104.80	0.97464	0.97457	0.97451	0.97444	0.97438	0.97431	0.97424	0.97418	0.97411	0.97405	104.80
104.90	0.97398	0.97392	0.97385	0.97379	0.97372	0.97366	0.97359	0.97353	0.97346	0.97340	104.90
105.00	0.97333	0.97327	0.97320	0.97314	0.97307	0.97300	0.97294	0.97287	0.97281	0.97274	105.00
105.10	0.97268	0.97261	0.97255	0.97248	0.97242	0.97235	0.97229	0.97222	0.97216	0.97210	105.10
105.20	0.97203	0.97197	0.97190	0.97184	0.97177	0.97171	0.97164	0.97158	0.97151	0.97145	105.20
105.30	0.97138	0.97132	0.97125	0.97119	0.97112	0.97106	0.97099	0.97093	0.97087	0.97080	105.30
105.40	0.97074	0.97067	0.97061	0.97054	0.97048	0.97041	0.97035	0.97028	0.97022	0.97016	105.40
105.50	0.97009	0.97003	0.96996	0.96990	0.96983	0.96977	0.96971	0.96964	0.96958	0.96951	105.50
105.60	0.96945	0.96938	0.96932	0.96926	0.96919	0.96913	0.96906	0.96900	0.96894	0.96887	105.60
105.70	0.96881	0.96874	0.96868	0.96862	0.96855	0.96849	0.96842	0.96836	0.96830	0.96823	105.70
105.80	0.96817	0.96810	0.96804	0.96798	0.96791	0.96785	0.96778	0.96772	0.96766	0.96759	105.80
105.90	0.96753	0.96747	0.96740	0.96734	0.96727	0.96721	0.96715	0.96708	0.96702	0.96696	105.90
106.00	0.96689	0.96683	0.96677	0.96670	0.96664	0.96658	0.96651	0.96645	0.96638	0.96632	106.00
106.10	0.96626	0.96619	0.96613	0.96607	0.96600	0.96594	0.96588	0.96581	0.96575	0.96569	106.10
106.20	0.96562	0.96556	0.96550	0.96543	0.96537	0.96531	0.96525	0.96518	0.96512	0.96506	106.20
106.30	0.96499	0.96493	0.96487	0.96480	0.96474	0.96468	0.96461	0.96455	0.96449	0.96443	106.30
106.40	0.96436	0.96430	0.96424	0.96417	0.96411	0.96405	0.96398	0.96392	0.96386	0.96380	106.40
106.50	0.96373	0.96367	0.96361	0.96354	0.96348	0.96342	0.96336	0.96329	0.96323	0.96317	106.50
106.60	0.96311	0.96304	0.96298	0.96292	0.96286	0.96279	0.96273	0.96267	0.96261	0.96254	106.60
106.70	0.96248	0.96242	0.96236	0.96229	0.96223	0.96217	0.96211	0.96204	0.96198	0.96192	106.70
106.80	0.96186	0.96179	0.96173	0.96167	0.96161	0.96154	0.96148	0.96142	0.96136	0.96130	106.80
106.90	0.96123	0.96117	0.96111	0.96105	0.96099	0.96092	0.96086	0.96080	0.96074	0.96067	106.90
107.00	0.96061	0.96055	0.96049	0.96043	0.96036	0.96030	0.96024	0.96018	0.96012	0.96005	107.00
107.10	0.95999	0.95993	0.95987	0.95981	0.95975	0.95968	0.95962	0.95956	0.95950	0.95944	107.10
107.20	0.95938	0.95931	0.95925	0.95919	0.95913	0.95907	0.95900	0.95894	0.95888	0.95882	107.20
107.30	0.95876	0.95870	0.95864	0.95857	0.95851	0.95845	0.95839	0.95833	0.95827	0.95820	107.30
107.40	0.95814	0.95808	0.95802	0.95796	0.95790	0.95784	0.95778	0.95771	0.95765	0.95759	107.40
107.50	0.95753	0.95747	0.95741	0.95735	0.95729	0.95722	0.95716	0.95710	0.95704	0.95698	107.50
107.60	0.95692	0.95686	0.95680	0.95673	0.95667	0.95661	0.95655	0.95649	0.95643	0.95637	107.60
107.70	0.95631	0.95625	0.95619	0.95612	0.95606	0.95600	0.95594	0.95588	0.95582	0.95576	107.70
107.80	0.95570	0.95564	0.95558	0.95552	0.95546	0.95539	0.95533	0.95527	0.95521	0.95515	107.80
107.90	0.95509	0.95503	0.95497	0.95491	0.95485	0.95479	0.95473	0.95467	0.95461	0.95455	107.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
108.00	0.95449	0.95443	0.95436	0.95430	0.95424	0.95418	0.95412	0.95406	0.95400	0.95394	108.00
108.10	0.95388	0.95382	0.95376	0.95370	0.95364	0.95358	0.95352	0.95346	0.95340	0.95334	108.10
108.20	0.95328	0.95322	0.95316	0.95310	0.95304	0.95298	0.95292	0.95286	0.95280	0.95274	108.20
108.30	0.95268	0.95262	0.95256	0.95250	0.95244	0.95238	0.95232	0.95226	0.95220	0.95214	108.30
108.40	0.95208	0.95202	0.95196	0.95190	0.95184	0.95178	0.95172	0.95166	0.95160	0.95154	108.40
108.50	0.95148	0.95142	0.95136	0.95130	0.95124	0.95118	0.95112	0.95106	0.95100	0.95094	108.50
108.60	0.95088	0.95082	0.95076	0.95070	0.95064	0.95058	0.95052	0.95046	0.95040	0.95035	108.60
108.70	0.95029	0.95023	0.95017	0.95011	0.95005	0.94999	0.94993	0.94987	0.94981	0.94975	108.70
108.80	0.94969	0.94963	0.94957	0.94951	0.94945	0.94940	0.94934	0.94928	0.94922	0.94916	108.80
108.90	0.94910	0.94904	0.94898	0.94892	0.94886	0.94880	0.94874	0.94869	0.94863	0.94857	108.90
109.00	0.94851	0.94845	0.94839	0.94833	0.94827	0.94821	0.94815	0.94809	0.94804	0.94798	109.00
109.10	0.94792	0.94786	0.94780	0.94774	0.94768	0.94762	0.94757	0.94751	0.94745	0.94739	109.10
109.20	0.94733	0.94727	0.94721	0.94715	0.94710	0.94704	0.94698	0.94692	0.94686	0.94680	109.20
109.30	0.94674	0.94668	0.94663	0.94657	0.94651	0.94645	0.94639	0.94633	0.94627	0.94622	109.30
109.40	0.94616	0.94610	0.94604	0.94598	0.94592	0.94587	0.94581	0.94575	0.94569	0.94563	109.40
109.50	0.94557	0.94552	0.94546	0.94540	0.94534	0.94528	0.94522	0.94517	0.94511	0.94505	109.50
109.60	0.94499	0.94493	0.94488	0.94482	0.94476	0.94470	0.94464	0.94458	0.94453	0.94447	109.60
109.70	0.94441	0.94435	0.94429	0.94424	0.94418	0.94412	0.94406	0.94400	0.94395	0.94389	109.70
109.80	0.94383	0.94377	0.94372	0.94366	0.94360	0.94354	0.94348	0.94343	0.94337	0.94331	109.80
109.90	0.94325	0.94320	0.94314	0.94308	0.94302	0.94296	0.94291	0.94285	0.94279	0.94273	109.90
110.00	0.94268	0.94262	0.94256	0.94250	0.94245	0.94239	0.94233	0.94227	0.94222	0.94216	110.00
110.10	0.94210	0.94204	0.94199	0.94193	0.94187	0.94181	0.94176	0.94170	0.94164	0.94158	110.10
110.20	0.94153	0.94147	0.94141	0.94135	0.94130	0.94124	0.94118	0.94113	0.94107	0.94101	110.20
110.30	0.94095	0.94090	0.94084	0.94078	0.94073	0.94067	0.94061	0.94055	0.94050	0.94044	110.30
110.40	0.94038	0.94033	0.94027	0.94021	0.94016	0.94010	0.94004	0.93998	0.93993	0.93987	110.40
110.50	0.93981	0.93976	0.93970	0.93964	0.93959	0.93953	0.93947	0.93942	0.93936	0.93930	110.50
110.60	0.93925	0.93919	0.93913	0.93908	0.93902	0.93896	0.93891	0.93885	0.93879	0.93874	110.60
110.70	0.93868	0.93862	0.93857	0.93851	0.93845	0.93840	0.93834	0.93828	0.93823	0.93817	110.70
110.80	0.93811	0.93806	0.93800	0.93794	0.93789	0.93783	0.93777	0.93772	0.93766	0.93761	110.80
110.90	0.93755	0.93749	0.93744	0.93738	0.93732	0.93727	0.93721	0.93716	0.93710	0.93704	110.90
111.00	0.93699	0.93693	0.93687	0.93682	0.93676	0.93671	0.93665	0.93659	0.93654	0.93648	111.00
111.10	0.93643	0.93637	0.93631	0.93626	0.93620	0.93614	0.93609	0.93603	0.93598	0.93592	111.10
111.20	0.93587	0.93581	0.93575	0.93570	0.93564	0.93559	0.93553	0.93547	0.93542	0.93536	111.20
111.30	0.93531	0.93525	0.93520	0.93514	0.93508	0.93503	0.93497	0.93492	0.93486	0.93481	111.30
111.40	0.93475	0.93469	0.93464	0.93458	0.93453	0.93447	0.93442	0.93436	0.93430	0.93425	111.40
111.50	0.93419	0.93414	0.93408	0.93403	0.93397	0.93392	0.93386	0.93381	0.93375	0.93369	111.50
111.60	0.93364	0.93358	0.93353	0.93347	0.93342	0.93336	0.93331	0.93325	0.93320	0.93314	111.60
111.70	0.93309	0.93303	0.93298	0.93292	0.93287	0.93281	0.93276	0.93270	0.93264	0.93259	111.70
111.80	0.93253	0.93248	0.93242	0.93237	0.93231	0.93226	0.93220	0.93215	0.93209	0.93204	111.80
111.90	0.93198	0.93193	0.93187	0.93182	0.93176	0.93171	0.93165	0.93160	0.93155	0.93149	111.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
112.00	0.93144	0.93138	0.93133	0.93127	0.93122	0.93116	0.93111	0.93105	0.93100	0.93094	112.00
112.10	0.93089	0.93083	0.93078	0.93072	0.93067	0.93061	0.93056	0.93051	0.93045	0.93040	112.10
112.20	0.93034	0.93029	0.93023	0.93018	0.93012	0.93007	0.93001	0.92996	0.92991	0.92985	112.20
112.30	0.92980	0.92974	0.92969	0.92963	0.92958	0.92952	0.92947	0.92942	0.92936	0.92931	112.30
112.40	0.92925	0.92920	0.92914	0.92909	0.92904	0.92898	0.92893	0.92887	0.92882	0.92877	112.40
112.50	0.92871	0.92866	0.92860	0.92855	0.92849	0.92844	0.92839	0.92833	0.92828	0.92822	112.50
112.60	0.92817	0.92812	0.92806	0.92801	0.92795	0.92790	0.92785	0.92779	0.92774	0.92768	112.60
112.70	0.92763	0.92758	0.92752	0.92747	0.92742	0.92736	0.92731	0.92725	0.92720	0.92715	112.70
112.80	0.92709	0.92704	0.92698	0.92693	0.92688	0.92682	0.92677	0.92672	0.92666	0.92661	112.80
112.90	0.92656	0.92650	0.92645	0.92639	0.92634	0.92629	0.92623	0.92618	0.92613	0.92607	112.90
113.00	0.92602	0.92597	0.92591	0.92586	0.92581	0.92575	0.92570	0.92565	0.92559	0.92554	113.00
113.10	0.92549	0.92543	0.92538	0.92533	0.92527	0.92522	0.92517	0.92511	0.92506	0.92501	113.10
113.20	0.92495	0.92490	0.92485	0.92479	0.92474	0.92469	0.92463	0.92458	0.92453	0.92447	113.20
113.30	0.92442	0.92437	0.92432	0.92426	0.92421	0.92416	0.92410	0.92405	0.92400	0.92394	113.30
113.40	0.92389	0.92384	0.92379	0.92373	0.92368	0.92363	0.92357	0.92352	0.92347	0.92342	113.40
113.50	0.92336	0.92331	0.92326	0.92320	0.92315	0.92310	0.92305	0.92299	0.92294	0.92289	113.50
113.60	0.92283	0.92278	0.92273	0.92268	0.92262	0.92257	0.92252	0.92247	0.92241	0.92236	113.60
113.70	0.92231	0.92226	0.92220	0.92215	0.92210	0.92205	0.92199	0.92194	0.92189	0.92184	113.70
113.80	0.92178	0.92173	0.92168	0.92163	0.92157	0.92152	0.92147	0.92142	0.92136	0.92131	113.80
113.90	0.92126	0.92121	0.92115	0.92110	0.92105	0.92100	0.92095	0.92089	0.92084	0.92079	113.90
114.00	0.92074	0.92068	0.92063	0.92058	0.92053	0.92048	0.92042	0.92037	0.92032	0.92027	114.00
114.10	0.92022	0.92016	0.92011	0.92006	0.92001	0.91996	0.91990	0.91985	0.91980	0.91975	114.10
114.20	0.91970	0.91964	0.91959	0.91954	0.91949	0.91944	0.91938	0.91933	0.91928	0.91923	114.20
114.30	0.91918	0.91913	0.91907	0.91902	0.91897	0.91892	0.91887	0.91882	0.91876	0.91871	114.30
114.40	0.91866	0.91861	0.91856	0.91851	0.91845	0.91840	0.91835	0.91830	0.91825	0.91820	114.40
114.50	0.91814	0.91809	0.91804	0.91799	0.91794	0.91789	0.91784	0.91778	0.91773	0.91768	114.50
114.60	0.91763	0.91758	0.91753	0.91748	0.91742	0.91737	0.91732	0.91727	0.91722	0.91717	114.60
114.70	0.91712	0.91706	0.91701	0.91696	0.91691	0.91686	0.91681	0.91676	0.91671	0.91665	114.70
114.80	0.91660	0.91655	0.91650	0.91645	0.91640	0.91635	0.91630	0.91625	0.91619	0.91614	114.80
114.90	0.91609	0.91604	0.91599	0.91594	0.91589	0.91584	0.91579	0.91574	0.91568	0.91563	114.90
115.00	0.91558	0.91553	0.91548	0.91543	0.91538	0.91533	0.91528	0.91523	0.91518	0.91513	115.00
115.10	0.91507	0.91502	0.91497	0.91492	0.91487	0.91482	0.91477	0.91472	0.91467	0.91462	115.10
115.20	0.91457	0.91452	0.91447	0.91442	0.91437	0.91431	0.91426	0.91421	0.91416	0.91411	115.20
115.30	0.91406	0.91401	0.91396	0.91391	0.91386	0.91381	0.91376	0.91371	0.91366	0.91361	115.30
115.40	0.91356	0.91351	0.91346	0.91341	0.91336	0.91331	0.91325	0.91320	0.91315	0.91310	115.40
115.50	0.91305	0.91300	0.91295	0.91290	0.91285	0.91280	0.91275	0.91270	0.91265	0.91260	115.50
115.60	0.91255	0.91250	0.91245	0.91240	0.91235	0.91230	0.91225	0.91220	0.91215	0.91210	115.60
115.70	0.91205	0.91200	0.91195	0.91190	0.91185	0.91180	0.91175	0.91170	0.91165	0.91160	115.70
115.80	0.91155	0.91150	0.91145	0.91140	0.91135	0.91130	0.91125	0.91120	0.91115	0.91110	115.80
115.90	0.91105	0.91100	0.91095	0.91090	0.91085	0.91080	0.91075	0.91070	0.91065	0.91061	115.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
116.00	0.91056	0.91051	0.91046	0.91041	0.91036	0.91031	0.91026	0.91021	0.91016	0.91011	116.00
116.10	0.91006	0.91001	0.90996	0.90991	0.90986	0.90981	0.90976	0.90971	0.90966	0.90961	116.10
116.20	0.90957	0.90952	0.90947	0.90942	0.90937	0.90932	0.90927	0.90922	0.90917	0.90912	116.20
116.30	0.90907	0.90902	0.90897	0.90892	0.90887	0.90883	0.90878	0.90873	0.90868	0.90863	116.30
116.40	0.90858	0.90853	0.90848	0.90843	0.90838	0.90833	0.90828	0.90824	0.90819	0.90814	116.40
116.50	0.90809	0.90804	0.90799	0.90794	0.90789	0.90784	0.90779	0.90775	0.90770	0.90765	116.50
116.60	0.90760	0.90755	0.90750	0.90745	0.90740	0.90735	0.90731	0.90726	0.90721	0.90716	116.60
116.70	0.90711	0.90706	0.90701	0.90696	0.90691	0.90687	0.90682	0.90677	0.90672	0.90667	116.70
116.80	0.90662	0.90657	0.90653	0.90648	0.90643	0.90638	0.90633	0.90628	0.90623	0.90619	116.80
116.90	0.90614	0.90609	0.90604	0.90599	0.90594	0.90589	0.90585	0.90580	0.90575	0.90570	116.90
117.00	0.90565	0.90560	0.90555	0.90551	0.90546	0.90541	0.90536	0.90531	0.90526	0.90522	117.00
117.10	0.90517	0.90512	0.90507	0.90502	0.90497	0.90493	0.90488	0.90483	0.90478	0.90473	117.10
117.20	0.90469	0.90464	0.90459	0.90454	0.90449	0.90444	0.90440	0.90435	0.90430	0.90425	117.20
117.30	0.90420	0.90416	0.90411	0.90406	0.90401	0.90396	0.90392	0.90387	0.90382	0.90377	117.30
117.40	0.90372	0.90368	0.90363	0.90358	0.90353	0.90348	0.90344	0.90339	0.90334	0.90329	117.40
117.50	0.90325	0.90320	0.90315	0.90310	0.90305	0.90301	0.90296	0.90291	0.90286	0.90282	117.50
117.60	0.90277	0.90272	0.90267	0.90262	0.90258	0.90253	0.90248	0.90243	0.90239	0.90234	117.60
117.70	0.90229	0.90224	0.90220	0.90215	0.90210	0.90205	0.90201	0.90196	0.90191	0.90186	117.70
117.80	0.90182	0.90177	0.90172	0.90167	0.90163	0.90158	0.90153	0.90148	0.90144	0.90139	117.80
117.90	0.90134	0.90129	0.90125	0.90120	0.90115	0.90110	0.90106	0.90101	0.90096	0.90092	117.90
118.00	0.90087	0.90082	0.90077	0.90073	0.90068	0.90063	0.90059	0.90054	0.90049	0.90044	118.00
118.10	0.90040	0.90035	0.90030	0.90026	0.90021	0.90016	0.90011	0.90007	0.90002	0.89997	118.10
118.20	0.89993	0.89988	0.89983	0.89979	0.89974	0.89969	0.89964	0.89960	0.89955	0.89950	118.20
118.30	0.89946	0.89941	0.89936	0.89932	0.89927	0.89922	0.89918	0.89913	0.89908	0.89904	118.30
118.40	0.89899	0.89894	0.89889	0.89885	0.89880	0.89875	0.89871	0.89866	0.89861	0.89857	118.40
118.50	0.89852	0.89847	0.89843	0.89838	0.89833	0.89829	0.89824	0.89820	0.89815	0.89810	118.50
118.60	0.89806	0.89801	0.89796	0.89792	0.89787	0.89782	0.89778	0.89773	0.89768	0.89764	118.60
118.70	0.89759	0.89754	0.89750	0.89745	0.89741	0.89736	0.89731	0.89727	0.89722	0.89717	118.70
118.80	0.89713	0.89708	0.89703	0.89699	0.89694	0.89690	0.89685	0.89680	0.89676	0.89671	118.80
118.90	0.89666	0.89662	0.89657	0.89653	0.89648	0.89643	0.89639	0.89634	0.89630	0.89625	118.90
119.00	0.89620	0.89616	0.89611	0.89607	0.89602	0.89597	0.89593	0.89588	0.89584	0.89579	119.00
119.10	0.89574	0.89570	0.89565	0.89561	0.89556	0.89551	0.89547	0.89542	0.89538	0.89533	119.10
119.20	0.89528	0.89524	0.89519	0.89515	0.89510	0.89506	0.89501	0.89496	0.89492	0.89487	119.20
119.30	0.89483	0.89478	0.89474	0.89469	0.89464	0.89460	0.89455	0.89451	0.89446	0.89442	119.30
119.40	0.89437	0.89432	0.89428	0.89423	0.89419	0.89414	0.89410	0.89405	0.89401	0.89396	119.40
119.50	0.89391	0.89387	0.89382	0.89378	0.89373	0.89369	0.89364	0.89360	0.89355	0.89351	119.50
119.60	0.89346	0.89341	0.89337	0.89332	0.89328	0.89323	0.89319	0.89314	0.89310	0.89305	119.60
119.70	0.89301	0.89296	0.89292	0.89287	0.89283	0.89278	0.89274	0.89269	0.89265	0.89260	119.70
119.80	0.89255	0.89251	0.89246	0.89242	0.89237	0.89233	0.89228	0.89224	0.89219	0.89215	119.80
119.90	0.89210	0.89206	0.89201	0.89197	0.89192	0.89188	0.89183	0.89179	0.89174	0.89170	119.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
120.00	0.89165	0.89161	0.89156	0.89152	0.89147	0.89143	0.89138	0.89134	0.89129	0.89125	120.00
120.10	0.89121	0.89116	0.89112	0.89107	0.89103	0.89098	0.89094	0.89089	0.89085	0.89080	120.10
120.20	0.89076	0.89071	0.89067	0.89062	0.89058	0.89053	0.89049	0.89045	0.89040	0.89036	120.20
120.30	0.89031	0.89027	0.89022	0.89018	0.89013	0.89009	0.89004	0.89000	0.88996	0.88991	120.30
120.40	0.88987	0.88982	0.88978	0.88973	0.88969	0.88964	0.88960	0.88955	0.88951	0.88947	120.40
120.50	0.88942	0.88938	0.88933	0.88929	0.88924	0.88920	0.88916	0.88911	0.88907	0.88902	120.50
120.60	0.88898	0.88893	0.88889	0.88885	0.88880	0.88876	0.88871	0.88867	0.88863	0.88858	120.60
120.70	0.88854	0.88849	0.88845	0.88840	0.88836	0.88832	0.88827	0.88823	0.88818	0.88814	120.70
120.80	0.88810	0.88805	0.88801	0.88796	0.88792	0.88788	0.88783	0.88779	0.88774	0.88770	120.80
120.90	0.88766	0.88761	0.88757	0.88752	0.88748	0.88744	0.88739	0.88735	0.88731	0.88726	120.90
121.00	0.88722	0.88717	0.88713	0.88709	0.88704	0.88700	0.88696	0.88691	0.88687	0.88682	121.00
121.10	0.88678	0.88674	0.88669	0.88665	0.88661	0.88656	0.88652	0.88647	0.88643	0.88639	121.10
121.20	0.88634	0.88630	0.88626	0.88621	0.88617	0.88613	0.88608	0.88604	0.88600	0.88595	121.20
121.30	0.88591	0.88587	0.88582	0.88578	0.88573	0.88569	0.88565	0.88560	0.88556	0.88552	121.30
121.40	0.88547	0.88543	0.88539	0.88534	0.88530	0.88526	0.88521	0.88517	0.88513	0.88508	121.40
121.50	0.88504	0.88500	0.88495	0.88491	0.88487	0.88483	0.88478	0.88474	0.88470	0.88465	121.50
121.60	0.88461	0.88457	0.88452	0.88448	0.88444	0.88439	0.88435	0.88431	0.88426	0.88422	121.60
121.70	0.88418	0.88414	0.88409	0.88405	0.88401	0.88396	0.88392	0.88388	0.88383	0.88379	121.70
121.80	0.88375	0.88371	0.88366	0.88362	0.88358	0.88353	0.88349	0.88345	0.88341	0.88336	121.80
121.90	0.88332	0.88328	0.88323	0.88319	0.88315	0.88311	0.88306	0.88302	0.88298	0.88294	121.90
122.00	0.88289	0.88285	0.88281	0.88276	0.88272	0.88268	0.88264	0.88259	0.88255	0.88251	122.00
122.10	0.88247	0.88242	0.88238	0.88234	0.88230	0.88225	0.88221	0.88217	0.88213	0.88208	122.10
122.20	0.88204	0.88200	0.88196	0.88191	0.88187	0.88183	0.88179	0.88174	0.88170	0.88166	122.20
122.30	0.88162	0.88157	0.88153	0.88149	0.88145	0.88140	0.88136	0.88132	0.88128	0.88123	122.30
122.40	0.88119	0.88115	0.88111	0.88107	0.88102	0.88098	0.88094	0.88090	0.88085	0.88081	122.40
122.50	0.88077	0.88073	0.88069	0.88064	0.88060	0.88056	0.88052	0.88048	0.88043	0.88039	122.50
122.60	0.88035	0.88031	0.88027	0.88022	0.88018	0.88014	0.88010	0.88006	0.88001	0.87997	122.60
122.70	0.87993	0.87989	0.87985	0.87980	0.87976	0.87972	0.87968	0.87964	0.87959	0.87955	122.70
122.80	0.87951	0.87947	0.87943	0.87938	0.87934	0.87930	0.87926	0.87922	0.87918	0.87913	122.80
122.90	0.87909	0.87905	0.87901	0.87897	0.87893	0.87888	0.87884	0.87880	0.87876	0.87872	122.90
123.00	0.87868	0.87863	0.87859	0.87855	0.87851	0.87847	0.87843	0.87838	0.87834	0.87830	123.00
123.10	0.87826	0.87822	0.87818	0.87814	0.87809	0.87805	0.87801	0.87797	0.87793	0.87789	123.10
123.20	0.87784	0.87780	0.87776	0.87772	0.87768	0.87764	0.87760	0.87756	0.87751	0.87747	123.20
123.30	0.87743	0.87739	0.87735	0.87731	0.87727	0.87722	0.87718	0.87714	0.87710	0.87706	123.30
123.40	0.87702	0.87698	0.87694	0.87690	0.87685	0.87681	0.87677	0.87673	0.87669	0.87665	123.40
123.50	0.87661	0.87657	0.87652	0.87648	0.87644	0.87640	0.87636	0.87632	0.87628	0.87624	123.50
123.60	0.87620	0.87616	0.87611	0.87607	0.87603	0.87599	0.87595	0.87591	0.87587	0.87583	123.60
123.70	0.87579	0.87575	0.87571	0.87566	0.87562	0.87558	0.87554	0.87550	0.87546	0.87542	123.70
123.80	0.87538	0.87534	0.87530	0.87526	0.87522	0.87517	0.87513	0.87509	0.87505	0.87501	123.80
123.90	0.87497	0.87493	0.87489	0.87485	0.87481	0.87477	0.87473	0.87469	0.87465	0.87461	123.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
124.00	0.87456	0.87452	0.87448	0.87444	0.87440	0.87436	0.87432	0.87428	0.87424	0.87420	124.00
124.10	0.87416	0.87412	0.87408	0.87404	0.87400	0.87396	0.87392	0.87388	0.87384	0.87380	124.10
124.20	0.87376	0.87372	0.87367	0.87363	0.87359	0.87355	0.87351	0.87347	0.87343	0.87339	124.20
124.30	0.87335	0.87331	0.87327	0.87323	0.87319	0.87315	0.87311	0.87307	0.87303	0.87299	124.30
124.40	0.87295	0.87291	0.87287	0.87283	0.87279	0.87275	0.87271	0.87267	0.87263	0.87259	124.40
124.50	0.87255	0.87251	0.87247	0.87243	0.87239	0.87235	0.87231	0.87227	0.87223	0.87219	124.50
124.60	0.87215	0.87211	0.87207	0.87203	0.87199	0.87195	0.87191	0.87187	0.87183	0.87179	124.60
124.70	0.87175	0.87171	0.87167	0.87163	0.87159	0.87155	0.87151	0.87147	0.87143	0.87139	124.70
124.80	0.87135	0.87131	0.87127	0.87123	0.87119	0.87115	0.87111	0.87107	0.87103	0.87099	124.80
124.90	0.87095	0.87092	0.87088	0.87084	0.87080	0.87076	0.87072	0.87068	0.87064	0.87060	124.90
125.00	0.87056	0.87052	0.87048	0.87044	0.87040	0.87036	0.87032	0.87028	0.87024	0.87020	125.00
125.10	0.87016	0.87012	0.87008	0.87005	0.87001	0.86997	0.86993	0.86989	0.86985	0.86981	125.10
125.20	0.86977	0.86973	0.86969	0.86965	0.86961	0.86957	0.86953	0.86949	0.86946	0.86942	125.20
125.30	0.86938	0.86934	0.86930	0.86926	0.86922	0.86918	0.86914	0.86910	0.86906	0.86902	125.30
125.40	0.86898	0.86895	0.86891	0.86887	0.86883	0.86879	0.86875	0.86871	0.86867	0.86863	125.40
125.50	0.86859	0.86856	0.86852	0.86848	0.86844	0.86840	0.86836	0.86832	0.86828	0.86824	125.50
125.60	0.86820	0.86817	0.86813	0.86809	0.86805	0.86801	0.86797	0.86793	0.86789	0.86785	125.60
125.70	0.86782	0.86778	0.86774	0.86770	0.86766	0.86762	0.86758	0.86754	0.86750	0.86747	125.70
125.80	0.86743	0.86739	0.86735	0.86731	0.86727	0.86723	0.86720	0.86716	0.86712	0.86708	125.80
125.90	0.86704	0.86700	0.86696	0.86692	0.86689	0.86685	0.86681	0.86677	0.86673	0.86669	125.90
126.00	0.86665	0.86662	0.86658	0.86654	0.86650	0.86646	0.86642	0.86639	0.86635	0.86631	126.00
126.10	0.86627	0.86623	0.86619	0.86615	0.86612	0.86608	0.86604	0.86600	0.86596	0.86592	126.10
126.20	0.86589	0.86585	0.86581	0.86577	0.86573	0.86569	0.86566	0.86562	0.86558	0.86554	126.20
126.30	0.86550	0.86546	0.86543	0.86539	0.86535	0.86531	0.86527	0.86524	0.86520	0.86516	126.30
126.40	0.86512	0.86508	0.86505	0.86501	0.86497	0.86493	0.86489	0.86485	0.86482	0.86478	126.40
126.50	0.86474	0.86470	0.86466	0.86463	0.86459	0.86455	0.86451	0.86447	0.86444	0.86440	126.50
126.60	0.86436	0.86432	0.86428	0.86425	0.86421	0.86417	0.86413	0.86410	0.86406	0.86402	126.60
126.70	0.86398	0.86394	0.86391	0.86387	0.86383	0.86379	0.86375	0.86372	0.86368	0.86364	126.70
126.80	0.86360	0.86357	0.86353	0.86349	0.86345	0.86342	0.86338	0.86334	0.86330	0.86326	126.80
126.90	0.86323	0.86319	0.86315	0.86311	0.86308	0.86304	0.86300	0.86296	0.86293	0.86289	126.90
127.00	0.86285	0.86281	0.86278	0.86274	0.86270	0.86266	0.86263	0.86259	0.86255	0.86251	127.00
127.10	0.86248	0.86244	0.86240	0.86236	0.86233	0.86229	0.86225	0.86221	0.86218	0.86214	127.10
127.20	0.86210	0.86206	0.86203	0.86199	0.86195	0.86192	0.86188	0.86184	0.86180	0.86177	127.20
127.30	0.86173	0.86169	0.86165	0.86162	0.86158	0.86154	0.86151	0.86147	0.86143	0.86139	127.30
127.40	0.86136	0.86132	0.86128	0.86125	0.86121	0.86117	0.86113	0.86110	0.86106	0.86102	127.40
127.50	0.86099	0.86095	0.86091	0.86088	0.86084	0.86080	0.86076	0.86073	0.86069	0.86065	127.50
127.60	0.86062	0.86058	0.86054	0.86051	0.86047	0.86043	0.86039	0.86036	0.86032	0.86028	127.60
127.70	0.86025	0.86021	0.86017	0.86014	0.86010	0.86006	0.86003	0.85999	0.85995	0.85992	127.70
127.80	0.85988	0.85984	0.85981	0.85977	0.85973	0.85970	0.85966	0.85962	0.85959	0.85955	127.80
127.90	0.85951	0.85948	0.85944	0.85940	0.85937	0.85933	0.85929	0.85926	0.85922	0.85918	127.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.54[illegible]390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
128.00	0.85915	0.85911	0.85907	0.85904	0.85900	0.85896	0.85893	0.85889	0.85885	0.85882	128.00
128.10	0.85878	0.85874	0.85871	0.85867	0.85863	0.85860	0.85856	0.85853	0.85849	0.85845	128.10
128.20	0.85842	0.85838	0.85834	0.85831	0.85827	0.85823	0.85820	0.85816	0.85813	0.85809	128.20
128.30	0.85805	0.85802	0.85798	0.85794	0.85791	0.85787	0.85784	0.85780	0.85776	0.85773	128.30
128.40	0.85769	0.85765	0.85762	0.85758	0.85755	0.85751	0.85747	0.85744	0.85740	0.85737	128.40
128.50	0.85733	0.85729	0.85726	0.85722	0.85719	0.85715	0.85711	0.85708	0.85704	0.85700	128.50
128.60	0.85697	0.85693	0.85690	0.85686	0.85683	0.85679	0.85675	0.85672	0.85668	0.85665	128.60
128.70	0.85661	0.85657	0.85654	0.85650	0.85647	0.85643	0.85639	0.85636	0.85632	0.85629	128.70
128.80	0.85625	0.85622	0.85618	0.85614	0.85611	0.85607	0.85604	0.85600	0.85596	0.85593	128.80
128.90	0.85589	0.85586	0.85582	0.85579	0.85575	0.85572	0.85568	0.85564	0.85561	0.85557	128.90
129.00	0.85554	0.85550	0.85547	0.85543	0.85539	0.85536	0.85532	0.85529	0.85525	0.85522	129.00
129.10	0.85518	0.85515	0.85511	0.85507	0.85504	0.85500	0.85497	0.85493	0.85490	0.85486	129.10
129.20	0.85483	0.85479	0.85476	0.85472	0.85468	0.85465	0.85461	0.85458	0.85454	0.85451	129.20
129.30	0.85447	0.85444	0.85440	0.85437	0.85433	0.85430	0.85426	0.85423	0.85419	0.85416	129.30
129.40	0.85412	0.85408	0.85405	0.85401	0.85398	0.85394	0.85391	0.85387	0.85384	0.85380	129.40
129.50	0.85377	0.85373	0.85370	0.85366	0.85363	0.85359	0.85356	0.85352	0.85349	0.85345	129.50
129.60	0.85342	0.85338	0.85335	0.85331	0.85328	0.85324	0.85321	0.85317	0.85314	0.85310	129.60
129.70	0.85307	0.85303	0.85300	0.85296	0.85293	0.85289	0.85286	0.85282	0.85279	0.85275	129.70
129.80	0.85272	0.85268	0.85265	0.85261	0.85258	0.85254	0.85251	0.85247	0.85244	0.85240	129.80
129.90	0.85237	0.85234	0.85230	0.85227	0.85223	0.85220	0.85216	0.85213	0.85209	0.85206	129.90
130.00	0.85202	0.85199	0.85195	0.85192	0.85188	0.85185	0.85182	0.85178	0.85175	0.85171	130.00
130.10	0.85168	0.85164	0.85161	0.85157	0.85154	0.85150	0.85147	0.85143	0.85140	0.85137	130.10
130.20	0.85133	0.85130	0.85126	0.85123	0.85119	0.85116	0.85112	0.85109	0.85106	0.85102	130.20
130.30	0.85099	0.85095	0.85092	0.85088	0.85085	0.85082	0.85078	0.85075	0.85071	0.85068	130.30
130.40	0.85064	0.85061	0.85057	0.85054	0.85051	0.85047	0.85044	0.85040	0.85037	0.85034	130.40
130.50	0.85030	0.85027	0.85023	0.85020	0.85016	0.85013	0.85010	0.85006	0.85003	0.84999	130.50
130.60	0.84996	0.84993	0.84989	0.84986	0.84982	0.84979	0.84975	0.84972	0.84969	0.84965	130.60
130.70	0.84962	0.84958	0.84955	0.84952	0.84948	0.84945	0.84941	0.84938	0.84935	0.84931	130.70
130.80	0.84928	0.84924	0.84921	0.84918	0.84914	0.84911	0.84908	0.84904	0.84901	0.84897	130.80
130.90	0.84894	0.84891	0.84887	0.84884	0.84880	0.84877	0.84874	0.84870	0.84867	0.84864	130.90
131.00	0.84860	0.84857	0.84853	0.84850	0.84847	0.84843	0.84840	0.84837	0.84833	0.84830	131.00
131.10	0.84827	0.84823	0.84820	0.84816	0.84813	0.84810	0.84806	0.84803	0.84800	0.84796	131.10
131.20	0.84793	0.84790	0.84786	0.84783	0.84779	0.84776	0.84773	0.84769	0.84766	0.84763	131.20
131.30	0.84759	0.84756	0.84753	0.84749	0.84746	0.84743	0.84739	0.84736	0.84733	0.84729	131.30
131.40	0.84726	0.84723	0.84719	0.84716	0.84713	0.84709	0.84706	0.84703	0.84699	0.84696	131.40
131.50	0.84693	0.84689	0.84686	0.84683	0.84679	0.84676	0.84673	0.84669	0.84666	0.84663	131.50
131.60	0.84659	0.84656	0.84653	0.84649	0.84646	0.84643	0.84639	0.84636	0.84633	0.84630	131.60
131.70	0.84626	0.84623	0.84620	0.84616	0.84613	0.84610	0.84606	0.84603	0.84600	0.84596	131.70
131.80	0.84593	0.84590	0.84587	0.84583	0.84580	0.84577	0.84573	0.84570	0.84567	0.84563	131.80
131.90	0.84560	0.84557	0.84554	0.84550	0.84547	0.84544	0.84540	0.84537	0.84534	0.84531	131.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
132.00	0.84527	0.84524	0.84521	0.84517	0.84514	0.84511	0.84508	0.84504	0.84501	0.84498	132.00
132.10	0.84494	0.84491	0.84488	0.84485	0.84481	0.84478	0.84475	0.84472	0.84468	0.84465	132.10
132.20	0.84462	0.84458	0.84455	0.84452	0.84449	0.84445	0.84442	0.84439	0.84436	0.84432	132.20
132.30	0.84429	0.84426	0.84423	0.84419	0.84416	0.84413	0.84410	0.84406	0.84403	0.84400	132.30
132.40	0.84397	0.84393	0.84390	0.84387	0.84384	0.84380	0.84377	0.84374	0.84371	0.84367	132.40
132.50	0.84364	0.84361	0.84358	0.84354	0.84351	0.84348	0.84345	0.84342	0.84338	0.84335	132.50
132.60	0.84332	0.84329	0.84325	0.84322	0.84319	0.84316	0.84312	0.84309	0.84306	0.84303	132.60
132.70	0.84300	0.84296	0.84293	0.84290	0.84287	0.84283	0.84280	0.84277	0.84274	0.84271	132.70
132.80	0.84267	0.84264	0.84261	0.84258	0.84255	0.84251	0.84248	0.84245	0.84242	0.84239	132.80
132.90	0.84235	0.84232	0.84229	0.84226	0.84223	0.84219	0.84216	0.84213	0.84210	0.84207	132.90
133.00	0.84203	0.84200	0.84197	0.84194	0.84191	0.84187	0.84184	0.84181	0.84178	0.84175	133.00
133.10	0.84171	0.84168	0.84165	0.84162	0.84159	0.84155	0.84152	0.84149	0.84146	0.84143	133.10
133.20	0.84140	0.84136	0.84133	0.84130	0.84127	0.84124	0.84121	0.84117	0.84114	0.84111	133.20
133.30	0.84108	0.84105	0.84102	0.84098	0.84095	0.84092	0.84089	0.84086	0.84083	0.84079	133.30
133.40	0.84076	0.84073	0.84070	0.84067	0.84064	0.84060	0.84057	0.84054	0.84051	0.84048	133.40
133.50	0.84045	0.84042	0.84038	0.84035	0.84032	0.84029	0.84026	0.84023	0.84019	0.84016	133.50
133.60	0.84013	0.84010	0.84007	0.84004	0.84001	0.83997	0.83994	0.83991	0.83988	0.83985	133.60
133.70	0.83982	0.83979	0.83976	0.83972	0.83969	0.83966	0.83963	0.83960	0.83957	0.83954	133.70
133.80	0.83951	0.83947	0.83944	0.83941	0.83938	0.83935	0.83932	0.83929	0.83926	0.83922	133.80
133.90	0.83919	0.83916	0.83913	0.83910	0.83907	0.83904	0.83901	0.83898	0.83894	0.83891	133.90
134.00	0.83888	0.83885	0.83882	0.83879	0.83876	0.83873	0.83870	0.83866	0.83863	0.83860	134.00
134.10	0.83857	0.83854	0.83851	0.83848	0.83845	0.83842	0.83839	0.83836	0.83832	0.83829	134.10
134.20	0.83826	0.83823	0.83820	0.83817	0.83814	0.83811	0.83808	0.83805	0.83802	0.83798	134.20
134.30	0.83795	0.83792	0.83789	0.83786	0.83783	0.83780	0.83777	0.83774	0.83771	0.83768	134.30
134.40	0.83765	0.83762	0.83758	0.83755	0.83752	0.83749	0.83746	0.83743	0.83740	0.83737	134.40
134.50	0.83734	0.83731	0.83728	0.83725	0.83722	0.83719	0.83716	0.83712	0.83709	0.83706	134.50
134.60	0.83703	0.83700	0.83697	0.83694	0.83691	0.83688	0.83685	0.83682	0.83679	0.83676	134.60
134.70	0.83673	0.83670	0.83667	0.83664	0.83661	0.83658	0.83655	0.83651	0.83648	0.83645	134.70
134.80	0.83642	0.83639	0.83636	0.83633	0.83630	0.83627	0.83624	0.83621	0.83618	0.83615	134.80
134.90	0.83612	0.83609	0.83606	0.83603	0.83600	0.83597	0.83594	0.83591	0.83588	0.83585	134.90
135.00	0.83582	0.83579	0.83576	0.83573	0.83570	0.83567	0.83564	0.83561	0.83558	0.83555	135.00
135.10	0.83552	0.83549	0.83546	0.83543	0.83540	0.83537	0.83534	0.83531	0.83528	0.83525	135.10
135.20	0.83522	0.83519	0.83516	0.83513	0.83510	0.83507	0.83504	0.83501	0.83498	0.83495	135.20
135.30	0.83492	0.83489	0.83486	0.83483	0.83480	0.83477	0.83474	0.83471	0.83468	0.83465	135.30
135.40	0.83462	0.83459	0.83456	0.83453	0.83450	0.83447	0.83444	0.83441	0.83438	0.83435	135.40
135.50	0.83432	0.83429	0.83426	0.83423	0.83420	0.83417	0.83414	0.83411	0.83408	0.83405	135.50
135.60	0.83402	0.83399	0.83396	0.83393	0.83390	0.83387	0.83384	0.83381	0.83378	0.83375	135.60
135.70	0.83372	0.83369	0.83366	0.83364	0.83361	0.83358	0.83355	0.83352	0.83349	0.83346	135.70
135.80	0.83343	0.83340	0.83337	0.83334	0.83331	0.83328	0.83325	0.83322	0.83319	0.83316	135.80
135.90	0.83313	0.83310	0.83307	0.83304	0.83302	0.83299	0.83296	0.83293	0.83290	0.83287	135.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
136.00	0.83284	0.83281	0.83278	0.83275	0.83272	0.83269	0.83266	0.83263	0.83260	0.83258	136.00
136.10	0.83255	0.83252	0.83249	0.83246	0.83243	0.83240	0.83237	0.83234	0.83231	0.83228	136.10
136.20	0.83225	0.83222	0.83220	0.83217	0.83214	0.83211	0.83208	0.83205	0.83202	0.83199	136.20
136.30	0.83196	0.83193	0.83190	0.83187	0.83185	0.83182	0.83179	0.83176	0.83173	0.83170	136.30
136.40	0.83167	0.83164	0.83161	0.83158	0.83156	0.83153	0.83150	0.83147	0.83144	0.83141	136.40
136.50	0.83138	0.83135	0.83132	0.83129	0.83127	0.83124	0.83121	0.83118	0.83115	0.83112	136.50
136.60	0.83109	0.83106	0.83103	0.83101	0.83098	0.83095	0.83092	0.83089	0.83086	0.83083	136.60
136.70	0.83080	0.83078	0.83075	0.83072	0.83069	0.83066	0.83063	0.83060	0.83057	0.83055	136.70
136.80	0.83052	0.83049	0.83046	0.83043	0.83040	0.83037	0.83034	0.83032	0.83029	0.83026	136.80
136.90	0.83023	0.83020	0.83017	0.83014	0.83012	0.83009	0.83006	0.83003	0.83000	0.82997	136.90
137.00	0.82994	0.82992	0.82989	0.82986	0.82983	0.82980	0.82977	0.82975	0.82972	0.82969	137.00
137.10	0.82966	0.82963	0.82960	0.82957	0.82955	0.82952	0.82949	0.82946	0.82943	0.82940	137.10
137.20	0.82938	0.82935	0.82932	0.82929	0.82926	0.82923	0.82921	0.82918	0.82915	0.82912	137.20
137.30	0.82909	0.82906	0.82904	0.82901	0.82898	0.82895	0.82892	0.82889	0.82887	0.82884	137.30
137.40	0.82881	0.82878	0.82875	0.82873	0.82870	0.82867	0.82864	0.82861	0.82858	0.82856	137.40
137.50	0.82853	0.82850	0.82847	0.82844	0.82842	0.82839	0.82836	0.82833	0.82830	0.82828	137.50
137.60	0.82825	0.82822	0.82819	0.82816	0.82814	0.82811	0.82808	0.82805	0.82802	0.82800	137.60
137.70	0.82797	0.82794	0.82791	0.82788	0.82786	0.82783	0.82780	0.82777	0.82774	0.82772	137.70
137.80	0.82769	0.82766	0.82763	0.82761	0.82758	0.82755	0.82752	0.82749	0.82747	0.82744	137.80
137.90	0.82741	0.82738	0.82735	0.82733	0.82730	0.82727	0.82724	0.82722	0.82719	0.82716	137.90
138.00	0.82713	0.82711	0.82708	0.82705	0.82702	0.82699	0.82697	0.82694	0.82691	0.82688	138.00
138.10	0.82686	0.82683	0.82680	0.82677	0.82675	0.82672	0.82669	0.82666	0.82664	0.82661	138.10
138.20	0.82658	0.82655	0.82653	0.82650	0.82647	0.82644	0.82642	0.82639	0.82636	0.82633	138.20
138.30	0.82631	0.82628	0.82625	0.82622	0.82620	0.82617	0.82614	0.82611	0.82609	0.82606	138.30
138.40	0.82603	0.82600	0.82598	0.82595	0.82592	0.82589	0.82587	0.82584	0.82581	0.82578	138.40
138.50	0.82576	0.82573	0.82570	0.82568	0.82565	0.82562	0.82559	0.82557	0.82554	0.82551	138.50
138.60	0.82548	0.82546	0.82543	0.82540	0.82538	0.82535	0.82532	0.82529	0.82527	0.82524	138.60
138.70	0.82521	0.82519	0.82516	0.82513	0.82510	0.82508	0.82505	0.82502	0.82500	0.82497	138.70
138.80	0.82494	0.82492	0.82489	0.82486	0.82483	0.82481	0.82478	0.82475	0.82473	0.82470	138.80
138.90	0.82467	0.82465	0.82462	0.82459	0.82456	0.82454	0.82451	0.82448	0.82446	0.82443	138.90
139.00	0.82440	0.82438	0.82435	0.82432	0.82430	0.82427	0.82424	0.82421	0.82419	0.82416	139.00
139.10	0.82413	0.82411	0.82408	0.82405	0.82403	0.82400	0.82397	0.82395	0.82392	0.82389	139.10
139.20	0.82387	0.82384	0.82381	0.82379	0.82376	0.82373	0.82371	0.82368	0.82365	0.82363	139.20
139.30	0.82360	0.82357	0.82355	0.82352	0.82349	0.82347	0.82344	0.82341	0.82339	0.82336	139.30
139.40	0.82333	0.82331	0.82328	0.82325	0.82323	0.82320	0.82317	0.82315	0.82312	0.82309	139.40
139.50	0.82307	0.82304	0.82301	0.82299	0.82296	0.82294	0.82291	0.82288	0.82286	0.82283	139.50
139.60	0.82280	0.82278	0.82275	0.82272	0.82270	0.82267	0.82264	0.82262	0.82259	0.82257	139.60
139.70	0.82254	0.82251	0.82249	0.82246	0.82243	0.82241	0.82238	0.82236	0.82233	0.82230	139.70
139.80	0.82228	0.82225	0.82222	0.82220	0.82217	0.82215	0.82212	0.82209	0.82207	0.82204	139.80
139.90	0.82201	0.82199	0.82196	0.82194	0.82191	0.82188	0.82186	0.82183	0.82180	0.82178	139.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
140.00	0.82175	0.82173	0.82170	0.82167	0.82165	0.82162	0.82160	0.82157	0.82154	0.82152	140.00
140.10	0.82149	0.82147	0.82144	0.82141	0.82139	0.82136	0.82134	0.82131	0.82128	0.82126	140.10
140.20	0.82123	0.82121	0.82118	0.82115	0.82113	0.82110	0.82108	0.82105	0.82103	0.82100	140.20
140.30	0.82097	0.82095	0.82092	0.82090	0.82087	0.82084	0.82082	0.82079	0.82077	0.82074	140.30
140.40	0.82072	0.82069	0.82066	0.82064	0.82061	0.82059	0.82056	0.82053	0.82051	0.82048	140.40
140.50	0.82046	0.82043	0.82041	0.82038	0.82035	0.82033	0.82030	0.82028	0.82025	0.82023	140.50
140.60	0.82020	0.82018	0.82015	0.82012	0.82010	0.82007	0.82005	0.82002	0.82000	0.81997	140.60
140.70	0.81995	0.81992	0.81989	0.81987	0.81984	0.81982	0.81979	0.81977	0.81974	0.81972	140.70
140.80	0.81969	0.81966	0.81964	0.81961	0.81959	0.81956	0.81954	0.81951	0.81949	0.81946	140.80
140.90	0.81944	0.81941	0.81938	0.81936	0.81933	0.81931	0.81928	0.81926	0.81923	0.81921	140.90
141.00	0.81918	0.81916	0.81913	0.81911	0.81908	0.81906	0.81903	0.81901	0.81898	0.81895	141.00
141.10	0.81893	0.81890	0.81888	0.81885	0.81883	0.81880	0.81878	0.81875	0.81873	0.81870	141.10
141.20	0.81868	0.81865	0.81863	0.81860	0.81858	0.81855	0.81853	0.81850	0.81848	0.81845	141.20
141.30	0.81843	0.81840	0.81838	0.81835	0.81833	0.81830	0.81828	0.81825	0.81823	0.81820	141.30
141.40	0.81818	0.81815	0.81813	0.81810	0.81808	0.81805	0.81803	0.81800	0.81798	0.81795	141.40
141.50	0.81793	0.81790	0.81788	0.81785	0.81783	0.81780	0.81778	0.81775	0.81773	0.81770	141.50
141.60	0.81768	0.81765	0.81763	0.81760	0.81758	0.81755	0.81753	0.81750	0.81748	0.81745	141.60
141.70	0.81743	0.81740	0.81738	0.81735	0.81733	0.81731	0.81728	0.81726	0.81723	0.81721	141.70
141.80	0.81718	0.81716	0.81713	0.81711	0.81708	0.81706	0.81703	0.81701	0.81698	0.81696	141.80
141.90	0.81694	0.81691	0.81689	0.81686	0.81684	0.81681	0.81679	0.81676	0.81674	0.81671	141.90
142.00	0.81669	0.81666	0.81664	0.81662	0.81659	0.81657	0.81654	0.81652	0.81649	0.81647	142.00
142.10	0.81644	0.81642	0.81640	0.81637	0.81635	0.81632	0.81630	0.81627	0.81625	0.81622	142.10
142.20	0.81620	0.81618	0.81615	0.81613	0.81610	0.81608	0.81605	0.81603	0.81601	0.81598	142.20
142.30	0.81596	0.81593	0.81591	0.81588	0.81586	0.81584	0.81581	0.81579	0.81576	0.81574	142.30
142.40	0.81571	0.81569	0.81567	0.81564	0.81562	0.81559	0.81557	0.81554	0.81552	0.81550	142.40
142.50	0.81547	0.81545	0.81542	0.81540	0.81538	0.81535	0.81533	0.81530	0.81528	0.81525	142.50
142.60	0.81523	0.81521	0.81518	0.81516	0.81513	0.81511	0.81509	0.81506	0.81504	0.81501	142.60
142.70	0.81499	0.81497	0.81494	0.81492	0.81489	0.81487	0.81485	0.81482	0.81480	0.81477	142.70
142.80	0.81475	0.81473	0.81470	0.81468	0.81466	0.81463	0.81461	0.81458	0.81456	0.81454	142.80
142.90	0.81451	0.81449	0.81446	0.81444	0.81442	0.81439	0.81437	0.81435	0.81432	0.81430	142.90
143.00	0.81427	0.81425	0.81423	0.81420	0.81418	0.81415	0.81413	0.81411	0.81408	0.81406	143.00
143.10	0.81404	0.81401	0.81399	0.81397	0.81394	0.81392	0.81389	0.81387	0.81385	0.81382	143.10
143.20	0.81380	0.81378	0.81375	0.81373	0.81371	0.81368	0.81366	0.81363	0.81361	0.81359	143.20
143.30	0.81356	0.81354	0.81352	0.81349	0.81347	0.81345	0.81342	0.81340	0.81338	0.81335	143.30
143.40	0.81333	0.81331	0.81328	0.81326	0.81323	0.81321	0.81319	0.81316	0.81314	0.81312	143.40
143.50	0.81309	0.81307	0.81305	0.81302	0.81300	0.81298	0.81295	0.81293	0.81291	0.81288	143.50
143.60	0.81286	0.81284	0.81281	0.81279	0.81277	0.81274	0.81272	0.81270	0.81267	0.81265	143.60
143.70	0.81263	0.81260	0.81258	0.81256	0.81253	0.81251	0.81249	0.81247	0.81244	0.81242	143.70
143.80	0.81240	0.81237	0.81235	0.81233	0.81230	0.81228	0.81226	0.81223	0.81221	0.81219	143.80
143.90	0.81216	0.81214	0.81212	0.81210	0.81207	0.81205	0.81203	0.81200	0.81198	0.81196	143.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
144.00	0.81193	0.81191	0.81189	0.81186	0.81184	0.81182	0.81180	0.81177	0.81175	0.81173	144.00
144.10	0.81170	0.81168	0.81166	0.81164	0.81161	0.81159	0.81157	0.81154	0.81152	0.81150	144.10
144.20	0.81147	0.81145	0.81143	0.81141	0.81138	0.81136	0.81134	0.81132	0.81129	0.81127	144.20
144.30	0.81125	0.81122	0.81120	0.81118	0.81116	0.81113	0.81111	0.81109	0.81106	0.81104	144.30
144.40	0.81102	0.81100	0.81097	0.81095	0.81093	0.81091	0.81088	0.81086	0.81084	0.81081	144.40
144.50	0.81079	0.81077	0.81075	0.81072	0.81070	0.81068	0.81066	0.81063	0.81061	0.81059	144.50
144.60	0.81057	0.81054	0.81052	0.81050	0.81048	0.81045	0.81043	0.81041	0.81039	0.81036	144.60
144.70	0.81034	0.81032	0.81030	0.81027	0.81025	0.81023	0.81021	0.81018	0.81016	0.81014	144.70
144.80	0.81012	0.81009	0.81007	0.81005	0.81003	0.81000	0.80998	0.80996	0.80994	0.80991	144.80
144.90	0.80989	0.80987	0.80985	0.80983	0.80980	0.80978	0.80976	0.80974	0.80971	0.80969	144.90
145.00	0.80967	0.80965	0.80962	0.80960	0.80958	0.80956	0.80954	0.80951	0.80949	0.80947	145.00
145.10	0.80945	0.80942	0.80940	0.80938	0.80936	0.80934	0.80931	0.80929	0.80927	0.80925	145.10
145.20	0.80922	0.80920	0.80918	0.80916	0.80914	0.80911	0.80909	0.80907	0.80905	0.80903	145.20
145.30	0.80900	0.80898	0.80896	0.80894	0.80892	0.80889	0.80887	0.80885	0.80883	0.80881	145.30
145.40	0.80878	0.80876	0.80874	0.80872	0.80870	0.80867	0.80865	0.80863	0.80861	0.80859	145.40
145.50	0.80856	0.80854	0.80852	0.80850	0.80848	0.80845	0.80843	0.80841	0.80839	0.80837	145.50
145.60	0.80835	0.80832	0.80830	0.80828	0.80826	0.80824	0.80821	0.80819	0.80817	0.80815	145.60
145.70	0.80813	0.80811	0.80808	0.80806	0.80804	0.80802	0.80800	0.80798	0.80795	0.80793	145.70
145.80	0.80791	0.80789	0.80787	0.80785	0.80782	0.80780	0.80778	0.80776	0.80774	0.80772	145.80
145.90	0.80769	0.80767	0.80765	0.80763	0.80761	0.80759	0.80756	0.80754	0.80752	0.80750	145.90
146.00	0.80748	0.80746	0.80743	0.80741	0.80739	0.80737	0.80735	0.80733	0.80731	0.80728	146.00
146.10	0.80726	0.80724	0.80722	0.80720	0.80718	0.80716	0.80713	0.80711	0.80709	0.80707	146.10
146.20	0.80705	0.80703	0.80701	0.80698	0.80696	0.80694	0.80692	0.80690	0.80688	0.80686	146.20
146.30	0.80683	0.80681	0.80679	0.80677	0.80675	0.80673	0.80671	0.80669	0.80666	0.80664	146.30
146.40	0.80662	0.80660	0.80658	0.80656	0.80654	0.80652	0.80649	0.80647	0.80645	0.80643	146.40
146.50	0.80641	0.80639	0.80637	0.80635	0.80633	0.80630	0.80628	0.80626	0.80624	0.80622	146.50
146.60	0.80620	0.80618	0.80616	0.80614	0.80611	0.80609	0.80607	0.80605	0.80603	0.80601	146.60
146.70	0.80599	0.80597	0.80595	0.80592	0.80590	0.80588	0.80586	0.80584	0.80582	0.80580	146.70
146.80	0.80578	0.80576	0.80574	0.80571	0.80569	0.80567	0.80565	0.80563	0.80561	0.80559	146.80
146.90	0.80557	0.80555	0.80553	0.80551	0.80548	0.80546	0.80544	0.80542	0.80540	0.80538	146.90
147.00	0.80536	0.80534	0.80532	0.80530	0.80528	0.80526	0.80524	0.80521	0.80519	0.80517	147.00
147.10	0.80515	0.80513	0.80511	0.80509	0.80507	0.80505	0.80503	0.80501	0.80499	0.80497	147.10
147.20	0.80495	0.80492	0.80490	0.80488	0.80486	0.80484	0.80482	0.80480	0.80478	0.80476	147.20
147.30	0.80474	0.80472	0.80470	0.80468	0.80466	0.80464	0.80462	0.80459	0.80457	0.80455	147.30
147.40	0.80453	0.80451	0.80449	0.80447	0.80445	0.80443	0.80441	0.80439	0.80437	0.80435	147.40
147.50	0.80433	0.80431	0.80429	0.80427	0.80425	0.80423	0.80421	0.80418	0.80416	0.80414	147.50
147.60	0.80412	0.80410	0.80408	0.80406	0.80404	0.80402	0.80400	0.80398	0.80396	0.80394	147.60
147.70	0.80392	0.80390	0.80388	0.80386	0.80384	0.80382	0.80380	0.80378	0.80376	0.80374	147.70
147.80	0.80372	0.80370	0.80368	0.80366	0.80364	0.80362	0.80360	0.80358	0.80356	0.80354	147.80
147.90	0.80352	0.80350	0.80348	0.80345	0.80343	0.80341	0.80339	0.80337	0.80335	0.80333	147.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
148.00	0.80331	0.80329	0.80327	0.80325	0.80323	0.80321	0.80319	0.80317	0.80315	0.80313	148.00
148.10	0.80311	0.80309	0.80307	0.80305	0.80303	0.80301	0.80299	0.80297	0.80295	0.80293	148.10
148.20	0.80291	0.80289	0.80287	0.80285	0.80283	0.80281	0.80279	0.80277	0.80275	0.80273	148.20
148.30	0.80271	0.80269	0.80267	0.80265	0.80263	0.80261	0.80259	0.80258	0.80256	0.80254	148.30
148.40	0.80252	0.80250	0.80248	0.80246	0.80244	0.80242	0.80240	0.80238	0.80236	0.80234	148.40
148.50	0.80232	0.80230	0.80228	0.80226	0.80224	0.80222	0.80220	0.80218	0.80216	0.80214	148.50
148.60	0.80212	0.80210	0.80208	0.80206	0.80204	0.80202	0.80200	0.80198	0.80196	0.80194	148.60
148.70	0.80192	0.80190	0.80189	0.80187	0.80185	0.80183	0.80181	0.80179	0.80177	0.80175	148.70
148.80	0.80173	0.80171	0.80169	0.80167	0.80165	0.80163	0.80161	0.80159	0.80157	0.80155	148.80
148.90	0.80153	0.80151	0.80149	0.80148	0.80146	0.80144	0.80142	0.80140	0.80138	0.80136	148.90
149.00	0.80134	0.80132	0.80130	0.80128	0.80126	0.80124	0.80122	0.80120	0.80118	0.80117	149.00
149.10	0.80115	0.80113	0.80111	0.80109	0.80107	0.80105	0.80103	0.80101	0.80099	0.80097	149.10
149.20	0.80095	0.80093	0.80091	0.80090	0.80088	0.80086	0.80084	0.80082	0.80080	0.80078	149.20
149.30	0.80076	0.80074	0.80072	0.80070	0.80068	0.80066	0.80065	0.80063	0.80061	0.80059	149.30
149.40	0.80057	0.80055	0.80053	0.80051	0.80049	0.80047	0.80045	0.80044	0.80042	0.80040	149.40
149.50	0.80038	0.80036	0.80034	0.80032	0.80030	0.80028	0.80026	0.80025	0.80023	0.80021	149.50
149.60	0.80019	0.80017	0.80015	0.80013	0.80011	0.80009	0.80007	0.80006	0.80004	0.80002	149.60
149.70	0.80000	0.79998	0.79996	0.79994	0.79992	0.79990	0.79989	0.79987	0.79985	0.79983	149.70
149.80	0.79981	0.79979	0.79977	0.79975	0.79974	0.79972	0.79970	0.79968	0.79966	0.79964	149.80
149.90	0.79962	0.79960	0.79958	0.79957	0.79955	0.79953	0.79951	0.79949	0.79947	0.79945	149.90
150.00	0.79944	0.79942	0.79940	0.79938	0.79936	0.79934	0.79932	0.79930	0.79929	0.79927	150.00
150.10	0.79925	0.79923	0.79921	0.79919	0.79917	0.79916	0.79914	0.79912	0.79910	0.79908	150.10
150.20	0.79906	0.79904	0.79903	0.79901	0.79899	0.79897	0.79895	0.79893	0.79891	0.79890	150.20
150.30	0.79888	0.79886	0.79884	0.79882	0.79880	0.79879	0.79877	0.79875	0.79873	0.79871	150.30
150.40	0.79869	0.79867	0.79866	0.79864	0.79862	0.79860	0.79858	0.79856	0.79855	0.79853	150.40
150.50	0.79851	0.79849	0.79847	0.79845	0.79844	0.79842	0.79840	0.79838	0.79836	0.79834	150.50
150.60	0.79833	0.79831	0.79829	0.79827	0.79825	0.79823	0.79822	0.79820	0.79818	0.79816	150.60
150.70	0.79814	0.79813	0.79811	0.79809	0.79807	0.79805	0.79803	0.79802	0.79800	0.79798	150.70
150.80	0.79796	0.79794	0.79793	0.79791	0.79789	0.79787	0.79785	0.79784	0.79782	0.79780	150.80
150.90	0.79778	0.79776	0.79774	0.79773	0.79771	0.79769	0.79767	0.79765	0.79764	0.79762	150.90
151.00	0.79760	0.79758	0.79756	0.79755	0.79753	0.79751	0.79749	0.79747	0.79746	0.79744	151.00
151.10	0.79742	0.79740	0.79738	0.79737	0.79735	0.79733	0.79731	0.79730	0.79728	0.79726	151.10
151.20	0.79724	0.79722	0.79721	0.79719	0.79717	0.79715	0.79713	0.79712	0.79710	0.79708	151.20
151.30	0.79706	0.79705	0.79703	0.79701	0.79699	0.79697	0.79696	0.79694	0.79692	0.79690	151.30
151.40	0.79689	0.79687	0.79685	0.79683	0.79682	0.79680	0.79678	0.79676	0.79674	0.79673	151.40
151.50	0.79671	0.79669	0.79667	0.79666	0.79664	0.79662	0.79660	0.79659	0.79657	0.79655	151.50
151.60	0.79653	0.79652	0.79650	0.79648	0.79646	0.79644	0.79643	0.79641	0.79639	0.79637	151.60
151.70	0.79636	0.79634	0.79632	0.79630	0.79629	0.79627	0.79625	0.79623	0.79622	0.79620	151.70
151.80	0.79618	0.79616	0.79615	0.79613	0.79611	0.79610	0.79608	0.79606	0.79604	0.79603	151.80
151.90	0.79601	0.79599	0.79597	0.79596	0.79594	0.79592	0.79590	0.79589	0.79587	0.79585	151.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
152.00	0.79583	0.79582	0.79580	0.79578	0.79577	0.79575	0.79573	0.79571	0.79570	0.79568	152.00
152.10	0.79566	0.79564	0.79563	0.79561	0.79559	0.79558	0.79556	0.79554	0.79552	0.79551	152.10
152.20	0.79549	0.79547	0.79546	0.79544	0.79542	0.79540	0.79539	0.79537	0.79535	0.79534	152.20
152.30	0.79532	0.79530	0.79528	0.79527	0.79525	0.79523	0.79522	0.79520	0.79518	0.79516	152.30
152.40	0.79515	0.79513	0.79511	0.79510	0.79508	0.79506	0.79505	0.79503	0.79501	0.79499	152.40
152.50	0.79498	0.79496	0.79494	0.79493	0.79491	0.79489	0.79488	0.79486	0.79484	0.79482	152.50
152.60	0.79481	0.79479	0.79477	0.79476	0.79474	0.79472	0.79471	0.79469	0.79467	0.79466	152.60
152.70	0.79464	0.79462	0.79461	0.79459	0.79457	0.79456	0.79454	0.79452	0.79450	0.79449	152.70
152.80	0.79447	0.79445	0.79444	0.79442	0.79440	0.79439	0.79437	0.79435	0.79434	0.79432	152.80
152.90	0.79430	0.79429	0.79427	0.79425	0.79424	0.79422	0.79420	0.79419	0.79417	0.79415	152.90
153.00	0.79414	0.79412	0.79410	0.79409	0.79407	0.79405	0.79404	0.79402	0.79400	0.79399	153.00
153.10	0.79397	0.79395	0.79394	0.79392	0.79390	0.79389	0.79387	0.79386	0.79384	0.79382	153.10
153.20	0.79381	0.79379	0.79377	0.79376	0.79374	0.79372	0.79371	0.79369	0.79367	0.79366	153.20
153.30	0.79364	0.79362	0.79361	0.79359	0.79358	0.79356	0.79354	0.79353	0.79351	0.79349	153.30
153.40	0.79348	0.79346	0.79344	0.79343	0.79341	0.79340	0.79338	0.79336	0.79335	0.79333	153.40
153.50	0.79331	0.79330	0.79328	0.79326	0.79325	0.79323	0.79322	0.79320	0.79318	0.79317	153.50
153.60	0.79315	0.79313	0.79312	0.79310	0.79309	0.79307	0.79305	0.79304	0.79302	0.79301	153.60
153.70	0.79299	0.79297	0.79296	0.79294	0.79292	0.79291	0.79289	0.79288	0.79286	0.79284	153.70
153.80	0.79283	0.79281	0.79280	0.79278	0.79276	0.79275	0.79273	0.79272	0.79270	0.79268	153.80
153.90	0.79267	0.79265	0.79263	0.79262	0.79260	0.79259	0.79257	0.79255	0.79254	0.79252	153.90
154.00	0.79251	0.79249	0.79247	0.79246	0.79244	0.79243	0.79241	0.79240	0.79238	0.79236	154.00
154.10	0.79235	0.79233	0.79232	0.79230	0.79228	0.79227	0.79225	0.79224	0.79222	0.79220	154.10
154.20	0.79219	0.79217	0.79216	0.79214	0.79213	0.79211	0.79209	0.79208	0.79206	0.79205	154.20
154.30	0.79203	0.79202	0.79200	0.79198	0.79197	0.79195	0.79194	0.79192	0.79190	0.79189	154.30
154.40	0.79187	0.79186	0.79184	0.79183	0.79181	0.79180	0.79178	0.79176	0.79175	0.79173	154.40
154.50	0.79172	0.79170	0.79169	0.79167	0.79165	0.79164	0.79162	0.79161	0.79159	0.79158	154.50
154.60	0.79156	0.79155	0.79153	0.79151	0.79150	0.79148	0.79147	0.79145	0.79144	0.79142	154.60
154.70	0.79141	0.79139	0.79137	0.79136	0.79134	0.79133	0.79131	0.79130	0.79128	0.79127	154.70
154.80	0.79125	0.79124	0.79122	0.79120	0.79119	0.79117	0.79116	0.79114	0.79113	0.79111	154.80
154.90	0.79110	0.79108	0.79107	0.79105	0.79104	0.79102	0.79100	0.79099	0.79097	0.79096	154.90
155.00	0.79094	0.79093	0.79091	0.79090	0.79088	0.79087	0.79085	0.79084	0.79082	0.79081	155.00
155.10	0.79079	0.79078	0.79076	0.79075	0.79073	0.79071	0.79070	0.79068	0.79067	0.79065	155.10
155.20	0.79064	0.79062	0.79061	0.79059	0.79058	0.79056	0.79055	0.79053	0.79052	0.79050	155.20
155.30	0.79049	0.79047	0.79046	0.79044	0.79043	0.79041	0.79040	0.79038	0.79037	0.79035	155.30
155.40	0.79034	0.79032	0.79031	0.79029	0.79028	0.79026	0.79025	0.79023	0.79022	0.79020	155.40
155.50	0.79019	0.79017	0.79016	0.79014	0.79013	0.79011	0.79010	0.79008	0.79007	0.79005	155.50
155.60	0.79004	0.79002	0.79001	0.78999	0.78998	0.78996	0.78995	0.78993	0.78992	0.78990	155.60
155.70	0.78989	0.78987	0.78986	0.78984	0.78983	0.78981	0.78980	0.78978	0.78977	0.78976	155.70
155.80	0.78974	0.78973	0.78971	0.78970	0.78968	0.78967	0.78965	0.78964	0.78962	0.78961	155.80
155.90	0.78959	0.78958	0.78956	0.78955	0.78953	0.78952	0.78950	0.78949	0.78948	0.78946	155.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
156.00	0.78945	0.78943	0.78942	0.78940	0.78939	0.78937	0.78936	0.78934	0.78933	0.78931	156.00
156.10	0.78930	0.78929	0.78927	0.78926	0.78924	0.78923	0.78921	0.78920	0.78918	0.78917	156.10
156.20	0.78915	0.78914	0.78913	0.78911	0.78910	0.78908	0.78907	0.78905	0.78904	0.78902	156.20
156.30	0.78901	0.78900	0.78898	0.78897	0.78895	0.78894	0.78892	0.78891	0.78889	0.78888	156.30
156.40	0.78887	0.78885	0.78884	0.78882	0.78881	0.78879	0.78878	0.78877	0.78875	0.78874	156.40
156.50	0.78872	0.78871	0.78869	0.78868	0.78867	0.78865	0.78864	0.78862	0.78861	0.78859	156.50
156.60	0.78858	0.78857	0.78855	0.78854	0.78852	0.78851	0.78849	0.78848	0.78847	0.78845	156.60
156.70	0.78844	0.78842	0.78841	0.78839	0.78838	0.78837	0.78835	0.78834	0.78832	0.78831	156.70
156.80	0.78830	0.78828	0.78827	0.78825	0.78824	0.78823	0.78821	0.78820	0.78818	0.78817	156.80
156.90	0.78815	0.78814	0.78813	0.78811	0.78810	0.78808	0.78807	0.78806	0.78804	0.78803	156.90
157.00	0.78801	0.78800	0.78799	0.78797	0.78796	0.78794	0.78793	0.78792	0.78790	0.78789	157.00
157.10	0.78788	0.78786	0.78785	0.78783	0.78782	0.78781	0.78779	0.78778	0.78776	0.78775	157.10
157.20	0.78774	0.78772	0.78771	0.78769	0.78768	0.78767	0.78765	0.78764	0.78763	0.78761	157.20
157.30	0.78760	0.78758	0.78757	0.78756	0.78754	0.78753	0.78752	0.78750	0.78749	0.78747	157.30
157.40	0.78746	0.78745	0.78743	0.78742	0.78741	0.78739	0.78738	0.78736	0.78735	0.78734	157.40
157.50	0.78732	0.78731	0.78730	0.78728	0.78727	0.78725	0.78724	0.78723	0.78721	0.78720	157.50
157.60	0.78719	0.78717	0.78716	0.78715	0.78713	0.78712	0.78711	0.78709	0.78708	0.78706	157.60
157.70	0.78705	0.78704	0.78702	0.78701	0.78700	0.78698	0.78697	0.78696	0.78694	0.78693	157.70
157.80	0.78692	0.78690	0.78689	0.78688	0.78686	0.78685	0.78684	0.78682	0.78681	0.78680	157.80
157.90	0.78678	0.78677	0.78675	0.78674	0.78673	0.78671	0.78670	0.78669	0.78667	0.78666	157.90
158.00	0.78665	0.78663	0.78662	0.78661	0.78659	0.78658	0.78657	0.78655	0.78654	0.78653	158.00
158.10	0.78651	0.78650	0.78649	0.78648	0.78646	0.78645	0.78644	0.78642	0.78641	0.78640	158.10
158.20	0.78638	0.78637	0.78636	0.78634	0.78633	0.78632	0.78630	0.78629	0.78628	0.78626	158.20
158.30	0.78625	0.78624	0.78622	0.78621	0.78620	0.78618	0.78617	0.78616	0.78615	0.78613	158.30
158.40	0.78612	0.78611	0.78609	0.78608	0.78607	0.78605	0.78604	0.78603	0.78601	0.78600	158.40
158.50	0.78599	0.78598	0.78596	0.78595	0.78594	0.78592	0.78591	0.78590	0.78588	0.78587	158.50
158.60	0.78586	0.78585	0.78583	0.78582	0.78581	0.78579	0.78578	0.78577	0.78576	0.78574	158.60
158.70	0.78573	0.78572	0.78570	0.78569	0.78568	0.78567	0.78565	0.78564	0.78563	0.78561	158.70
158.80	0.78560	0.78559	0.78558	0.78556	0.78555	0.78554	0.78552	0.78551	0.78550	0.78549	158.80
158.90	0.78547	0.78546	0.78545	0.78543	0.78542	0.78541	0.78540	0.78538	0.78537	0.78536	158.90
159.00	0.78535	0.78533	0.78532	0.78531	0.78529	0.78528	0.78527	0.78526	0.78524	0.78523	159.00
159.10	0.78522	0.78521	0.78519	0.78518	0.78517	0.78516	0.78514	0.78513	0.78512	0.78511	159.10
159.20	0.78509	0.78508	0.78507	0.78506	0.78504	0.78503	0.78502	0.78501	0.78499	0.78498	159.20
159.30	0.78497	0.78495	0.78494	0.78493	0.78492	0.78491	0.78489	0.78488	0.78487	0.78486	159.30
159.40	0.78484	0.78483	0.78482	0.78481	0.78479	0.78478	0.78477	0.78476	0.78474	0.78473	159.40
159.50	0.78472	0.78471	0.78469	0.78468	0.78467	0.78466	0.78464	0.78463	0.78462	0.78461	159.50
159.60	0.78460	0.78458	0.78457	0.78456	0.78455	0.78453	0.78452	0.78451	0.78450	0.78448	159.60
159.70	0.78447	0.78446	0.78445	0.78444	0.78442	0.78441	0.78440	0.78439	0.78437	0.78436	159.70
159.80	0.78435	0.78434	0.78433	0.78431	0.78430	0.78429	0.78428	0.78426	0.78425	0.78424	159.80
159.90	0.78423	0.78422	0.78420	0.78419	0.78418	0.78417	0.78416	0.78414	0.78413	0.78412	159.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
160.00	0.78411	0.78410	0.78408	0.78407	0.78406	0.78405	0.78404	0.78402	0.78401	0.78400	160.00
160.10	0.78399	0.78398	0.78396	0.78395	0.78394	0.78393	0.78392	0.78390	0.78389	0.78388	160.10
160.20	0.78387	0.78386	0.78384	0.78383	0.78382	0.78381	0.78380	0.78378	0.78377	0.78376	160.20
160.30	0.78375	0.78374	0.78372	0.78371	0.78370	0.78369	0.78368	0.78367	0.78365	0.78364	160.30
160.40	0.78363	0.78362	0.78361	0.78359	0.78358	0.78357	0.78356	0.78355	0.78354	0.78352	160.40
160.50	0.78351	0.78350	0.78349	0.78348	0.78347	0.78345	0.78344	0.78343	0.78342	0.78341	160.50
160.60	0.78339	0.78338	0.78337	0.78336	0.78335	0.78334	0.78332	0.78331	0.78330	0.78329	160.60
160.70	0.78328	0.78327	0.78326	0.78324	0.78323	0.78322	0.78321	0.78320	0.78319	0.78317	160.70
160.80	0.78316	0.78315	0.78314	0.78313	0.78312	0.78310	0.78309	0.78308	0.78307	0.78306	160.80
160.90	0.78305	0.78304	0.78302	0.78301	0.78300	0.78299	0.78298	0.78297	0.78296	0.78294	160.90
161.00	0.78293	0.78292	0.78291	0.78290	0.78289	0.78288	0.78286	0.78285	0.78284	0.78283	161.00
161.10	0.78282	0.78281	0.78280	0.78278	0.78277	0.78276	0.78275	0.78274	0.78273	0.78272	161.10
161.20	0.78271	0.78269	0.78268	0.78267	0.78266	0.78265	0.78264	0.78263	0.78261	0.78260	161.20
161.30	0.78259	0.78258	0.78257	0.78256	0.78255	0.78254	0.78252	0.78251	0.78250	0.78249	161.30
161.40	0.78248	0.78247	0.78246	0.78245	0.78244	0.78242	0.78241	0.78240	0.78239	0.78238	161.40
161.50	0.78237	0.78236	0.78235	0.78234	0.78232	0.78231	0.78230	0.78229	0.78228	0.78227	161.50
161.60	0.78226	0.78225	0.78224	0.78222	0.78221	0.78220	0.78219	0.78218	0.78217	0.78216	161.60
161.70	0.78215	0.78214	0.78213	0.78211	0.78210	0.78209	0.78208	0.78207	0.78206	0.78205	161.70
161.80	0.78204	0.78203	0.78202	0.78201	0.78199	0.78198	0.78197	0.78196	0.78195	0.78194	161.80
161.90	0.78193	0.78192	0.78191	0.78190	0.78189	0.78187	0.78186	0.78185	0.78184	0.78183	161.90
162.00	0.78182	0.78181	0.78180	0.78179	0.78178	0.78177	0.78176	0.78175	0.78173	0.78172	162.00
162.10	0.78171	0.78170	0.78169	0.78168	0.78167	0.78166	0.78165	0.78164	0.78163	0.78162	162.10
162.20	0.78161	0.78159	0.78158	0.78157	0.78156	0.78155	0.78154	0.78153	0.78152	0.78151	162.20
162.30	0.78150	0.78149	0.78148	0.78147	0.78146	0.78145	0.78144	0.78142	0.78141	0.78140	162.30
162.40	0.78139	0.78138	0.78137	0.78136	0.78135	0.78134	0.78133	0.78132	0.78131	0.78130	162.40
162.50	0.78129	0.78128	0.78127	0.78126	0.78125	0.78124	0.78123	0.78121	0.78120	0.78119	162.50
162.60	0.78118	0.78117	0.78116	0.78115	0.78114	0.78113	0.78112	0.78111	0.78110	0.78109	162.60
162.70	0.78108	0.78107	0.78106	0.78105	0.78104	0.78103	0.78102	0.78101	0.78100	0.78099	162.70
162.80	0.78098	0.78097	0.78096	0.78095	0.78093	0.78092	0.78091	0.78090	0.78089	0.78088	162.80
162.90	0.78087	0.78086	0.78085	0.78084	0.78083	0.78082	0.78081	0.78080	0.78079	0.78078	162.90
163.00	0.78077	0.78076	0.78075	0.78074	0.78073	0.78072	0.78071	0.78070	0.78069	0.78068	163.00
163.10	0.78067	0.78066	0.78065	0.78064	0.78063	0.78062	0.78061	0.78060	0.78059	0.78058	163.10
163.20	0.78057	0.78056	0.78055	0.78054	0.78053	0.78052	0.78051	0.78050	0.78049	0.78048	163.20
163.30	0.78047	0.78046	0.78045	0.78044	0.78043	0.78042	0.78041	0.78040	0.78039	0.78038	163.30
163.40	0.78037	0.78036	0.78035	0.78034	0.78033	0.78032	0.78031	0.78030	0.78029	0.78028	163.40
163.50	0.78027	0.78026	0.78025	0.78024	0.78023	0.78022	0.78021	0.78020	0.78019	0.78018	163.50
163.60	0.78017	0.78016	0.78015	0.78014	0.78013	0.78012	0.78011	0.78010	0.78009	0.78008	163.60
163.70	0.78007	0.78006	0.78005	0.78004	0.78003	0.78002	0.78002	0.78001	0.78000	0.77999	163.70
163.80	0.77998	0.77997	0.77996	0.77995	0.77994	0.77993	0.77992	0.77991	0.77990	0.77989	163.80
163.90	0.77988	0.77987	0.77986	0.77985	0.77984	0.77983	0.77982	0.77981	0.77980	0.77979	163.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
164.00	0.77978	0.77977	0.77976	0.77976	0.77975	0.77974	0.77973	0.77972	0.77971	0.77970	164.00
164.10	0.77969	0.77968	0.77967	0.77966	0.77965	0.77964	0.77963	0.77962	0.77961	0.77960	164.10
164.20	0.77959	0.77958	0.77957	0.77957	0.77956	0.77955	0.77954	0.77953	0.77952	0.77951	164.20
164.30	0.77950	0.77949	0.77948	0.77947	0.77946	0.77945	0.77944	0.77943	0.77942	0.77942	164.30
164.40	0.77941	0.77940	0.77939	0.77938	0.77937	0.77936	0.77935	0.77934	0.77933	0.77932	164.40
164.50	0.77931	0.77930	0.77929	0.77929	0.77928	0.77927	0.77926	0.77925	0.77924	0.77923	164.50
164.60	0.77922	0.77921	0.77920	0.77919	0.77918	0.77918	0.77917	0.77916	0.77915	0.77914	164.60
164.70	0.77913	0.77912	0.77911	0.77910	0.77909	0.77908	0.77907	0.77907	0.77906	0.77905	164.70
164.80	0.77904	0.77903	0.77902	0.77901	0.77900	0.77899	0.77898	0.77898	0.77897	0.77896	164.80
164.90	0.77895	0.77894	0.77893	0.77892	0.77891	0.77890	0.77889	0.77889	0.77888	0.77887	164.90
165.00	0.77886	0.77885	0.77884	0.77883	0.77882	0.77881	0.77880	0.77880	0.77879	0.77878	165.00
165.10	0.77877	0.77876	0.77875	0.77874	0.77873	0.77872	0.77872	0.77871	0.77870	0.77869	165.10
165.20	0.77868	0.77867	0.77866	0.77865	0.77865	0.77864	0.77863	0.77862	0.77861	0.77860	165.20
165.30	0.77859	0.77858	0.77858	0.77857	0.77856	0.77855	0.77854	0.77853	0.77852	0.77851	165.30
165.40	0.77851	0.77850	0.77849	0.77848	0.77847	0.77846	0.77845	0.77844	0.77844	0.77843	165.40
165.50	0.77842	0.77841	0.77840	0.77839	0.77838	0.77838	0.77837	0.77836	0.77835	0.77834	165.50
165.60	0.77833	0.77832	0.77832	0.77831	0.77830	0.77829	0.77828	0.77827	0.77826	0.77826	165.60
165.70	0.77825	0.77824	0.77823	0.77822	0.77821	0.77820	0.77820	0.77819	0.77818	0.77817	165.70
165.80	0.77816	0.77815	0.77815	0.77814	0.77813	0.77812	0.77811	0.77810	0.77809	0.77809	165.80
165.90	0.77808	0.77807	0.77806	0.77805	0.77804	0.77804	0.77803	0.77802	0.77801	0.77800	165.90
166.00	0.77799	0.77799	0.77798	0.77797	0.77796	0.77795	0.77794	0.77794	0.77793	0.77792	166.00
166.10	0.77791	0.77790	0.77789	0.77789	0.77788	0.77787	0.77786	0.77785	0.77784	0.77784	166.10
166.20	0.77783	0.77782	0.77781	0.77780	0.77780	0.77779	0.77778	0.77777	0.77776	0.77775	166.20
166.30	0.77775	0.77774	0.77773	0.77772	0.77771	0.77771	0.77770	0.77769	0.77768	0.77767	166.30
166.40	0.77767	0.77766	0.77765	0.77764	0.77763	0.77763	0.77762	0.77761	0.77760	0.77759	166.40
166.50	0.77758	0.77758	0.77757	0.77756	0.77755	0.77754	0.77754	0.77753	0.77752	0.77751	166.50
166.60	0.77750	0.77750	0.77749	0.77748	0.77747	0.77747	0.77746	0.77745	0.77744	0.77743	166.60
166.70	0.77743	0.77742	0.77741	0.77740	0.77739	0.77739	0.77738	0.77737	0.77736	0.77735	166.70
166.80	0.77735	0.77734	0.77733	0.77732	0.77732	0.77731	0.77730	0.77729	0.77728	0.77728	166.80
166.90	0.77727	0.77726	0.77725	0.77725	0.77724	0.77723	0.77722	0.77721	0.77721	0.77720	166.90
167.00	0.77719	0.77718	0.77718	0.77717	0.77716	0.77715	0.77714	0.77714	0.77713	0.77712	167.00
167.10	0.77711	0.77711	0.77710	0.77709	0.77708	0.77708	0.77707	0.77706	0.77705	0.77705	167.10
167.20	0.77704	0.77703	0.77702	0.77701	0.77701	0.77700	0.77699	0.77698	0.77698	0.77697	167.20
167.30	0.77696	0.77695	0.77695	0.77694	0.77693	0.77692	0.77692	0.77691	0.77690	0.77689	167.30
167.40	0.77689	0.77688	0.77687	0.77686	0.77686	0.77685	0.77684	0.77683	0.77683	0.77682	167.40
167.50	0.77681	0.77680	0.77680	0.77679	0.77678	0.77678	0.77677	0.77676	0.77675	0.77675	167.50
167.60	0.77674	0.77673	0.77672	0.77672	0.77671	0.77670	0.77669	0.77669	0.77668	0.77667	167.60
167.70	0.77666	0.77666	0.77665	0.77664	0.77664	0.77663	0.77662	0.77661	0.77661	0.77660	167.70
167.80	0.77659	0.77658	0.77658	0.77657	0.77656	0.77656	0.77655	0.77654	0.77653	0.77653	167.80
167.90	0.77652	0.77651	0.77651	0.77650	0.77649	0.77648	0.77648	0.77647	0.77646	0.77646	167.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
168.00	0.77645	0.77644	0.77643	0.77643	0.77642	0.77641	0.77641	0.77640	0.77639	0.77638	168.00
168.10	0.77638	0.77637	0.77636	0.77636	0.77635	0.77634	0.77634	0.77633	0.77632	0.77631	168.10
168.20	0.77631	0.77630	0.77629	0.77629	0.77628	0.77627	0.77627	0.77626	0.77625	0.77624	168.20
168.30	0.77624	0.77623	0.77622	0.77622	0.77621	0.77620	0.77620	0.77619	0.77618	0.77618	168.30
168.40	0.77617	0.77616	0.77615	0.77615	0.77614	0.77613	0.77613	0.77612	0.77611	0.77611	168.40
168.50	0.77610	0.77609	0.77609	0.77608	0.77607	0.77607	0.77606	0.77605	0.77605	0.77604	168.50
168.60	0.77603	0.77603	0.77602	0.77601	0.77601	0.77600	0.77599	0.77598	0.77598	0.77597	168.60
168.70	0.77596	0.77596	0.77595	0.77594	0.77594	0.77593	0.77592	0.77592	0.77591	0.77590	168.70
168.80	0.77590	0.77589	0.77588	0.77588	0.77587	0.77586	0.77586	0.77585	0.77585	0.77584	168.80
168.90	0.77583	0.77583	0.77582	0.77581	0.77581	0.77580	0.77579	0.77579	0.77578	0.77577	168.90
169.00	0.77577	0.77576	0.77575	0.77575	0.77574	0.77573	0.77573	0.77572	0.77571	0.77571	169.00
169.10	0.77570	0.77570	0.77569	0.77568	0.77568	0.77567	0.77566	0.77566	0.77565	0.77564	169.10
169.20	0.77564	0.77563	0.77562	0.77562	0.77561	0.77561	0.77560	0.77559	0.77559	0.77558	169.20
169.30	0.77557	0.77557	0.77556	0.77555	0.77555	0.77554	0.77554	0.77553	0.77552	0.77552	169.30
169.40	0.77551	0.77550	0.77550	0.77549	0.77549	0.77548	0.77547	0.77547	0.77546	0.77545	169.40
169.50	0.77545	0.77544	0.77544	0.77543	0.77542	0.77542	0.77541	0.77540	0.77540	0.77539	169.50
169.60	0.77539	0.77538	0.77537	0.77537	0.77536	0.77536	0.77535	0.77534	0.77534	0.77533	169.60
169.70	0.77532	0.77532	0.77531	0.77531	0.77530	0.77529	0.77529	0.77528	0.77528	0.77527	169.70
169.80	0.77526	0.77526	0.77525	0.77525	0.77524	0.77523	0.77523	0.77522	0.77522	0.77521	169.80
169.90	0.77520	0.77520	0.77519	0.77519	0.77518	0.77517	0.77517	0.77516	0.77516	0.77515	169.90
170.00	0.77514	0.77514	0.77513	0.77513	0.77512	0.77512	0.77511	0.77510	0.77510	0.77509	170.00
170.10	0.77509	0.77508	0.77507	0.77507	0.77506	0.77506	0.77505	0.77504	0.77504	0.77503	170.10
170.20	0.77503	0.77502	0.77502	0.77501	0.77500	0.77500	0.77499	0.77499	0.77498	0.77498	170.20
170.30	0.77497	0.77496	0.77496	0.77495	0.77495	0.77494	0.77494	0.77493	0.77492	0.77492	170.30
170.40	0.77491	0.77491	0.77490	0.77490	0.77489	0.77488	0.77488	0.77487	0.77487	0.77486	170.40
170.50	0.77486	0.77485	0.77485	0.77484	0.77483	0.77483	0.77482	0.77482	0.77481	0.77481	170.50
170.60	0.77480	0.77479	0.77479	0.77478	0.77478	0.77477	0.77477	0.77476	0.77476	0.77475	170.60
170.70	0.77475	0.77474	0.77473	0.77473	0.77472	0.77472	0.77471	0.77471	0.77470	0.77470	170.70
170.80	0.77469	0.77468	0.77468	0.77467	0.77467	0.77466	0.77466	0.77465	0.77465	0.77464	170.80
170.90	0.77464	0.77463	0.77463	0.77462	0.77461	0.77461	0.77460	0.77460	0.77459	0.77459	170.90
171.00	0.77458	0.77458	0.77457	0.77457	0.77456	0.77456	0.77455	0.77455	0.77454	0.77454	171.00
171.10	0.77453	0.77452	0.77452	0.77451	0.77451	0.77450	0.77450	0.77449	0.77449	0.77448	171.10
171.20	0.77448	0.77447	0.77447	0.77446	0.77446	0.77445	0.77445	0.77444	0.77444	0.77443	171.20
171.30	0.77443	0.77442	0.77442	0.77441	0.77441	0.77440	0.77440	0.77439	0.77438	0.77438	171.30
171.40	0.77437	0.77437	0.77436	0.77436	0.77435	0.77435	0.77434	0.77434	0.77433	0.77433	171.40
171.50	0.77432	0.77432	0.77431	0.77431	0.77430	0.77430	0.77429	0.77429	0.77428	0.77428	171.50
171.60	0.77427	0.77427	0.77426	0.77426	0.77425	0.77425	0.77424	0.77424	0.77423	0.77423	171.60
171.70	0.77423	0.77422	0.77422	0.77421	0.77421	0.77420	0.77420	0.77419	0.77419	0.77418	171.70
171.80	0.77418	0.77417	0.77417	0.77416	0.77416	0.77415	0.77415	0.77414	0.77414	0.77413	171.80
171.90	0.77413	0.77412	0.77412	0.77411	0.77411	0.77410	0.77410	0.77409	0.77409	0.77409	171.90

Conversion Table - Degrees Two Theta to Interplanar Spacings
for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
172.00	0.77408	0.77408	0.77407	0.77407	0.77406	0.77406	0.77405	0.77405	0.77404	0.77404	172.00
172.10	0.77403	0.77403	0.77402	0.77402	0.77402	0.77401	0.77401	0.77400	0.77400	0.77399	172.10
172.20	0.77399	0.77398	0.77398	0.77397	0.77397	0.77396	0.77396	0.77396	0.77395	0.77395	172.20
172.30	0.77394	0.77394	0.77393	0.77393	0.77392	0.77392	0.77391	0.77391	0.77391	0.77390	172.30
172.40	0.77390	0.77389	0.77389	0.77388	0.77388	0.77387	0.77387	0.77387	0.77386	0.77386	172.40
172.50	0.77385	0.77385	0.77384	0.77384	0.77383	0.77383	0.77383	0.77382	0.77382	0.77381	172.50
172.60	0.77381	0.77380	0.77380	0.77379	0.77379	0.77379	0.77378	0.77378	0.77377	0.77377	172.60
172.70	0.77376	0.77376	0.77376	0.77375	0.77375	0.77374	0.77374	0.77373	0.77373	0.77373	172.70
172.80	0.77372	0.77372	0.77371	0.77371	0.77370	0.77370	0.77370	0.77369	0.77369	0.77368	172.80
172.90	0.77368	0.77368	0.77367	0.77367	0.77366	0.77366	0.77365	0.77365	0.77365	0.77364	172.90
173.00	0.77364	0.77363	0.77363	0.77363	0.77362	0.77362	0.77361	0.77361	0.77361	0.77360	173.00
173.10	0.77360	0.77359	0.77359	0.77358	0.77358	0.77358	0.77357	0.77357	0.77356	0.77356	173.10
173.20	0.77356	0.77355	0.77355	0.77354	0.77354	0.77354	0.77353	0.77353	0.77352	0.77352	173.20
173.30	0.77352	0.77351	0.77351	0.77350	0.77350	0.77350	0.77349	0.77349	0.77349	0.77348	173.30
173.40	0.77348	0.77347	0.77347	0.77347	0.77346	0.77346	0.77345	0.77345	0.77345	0.77344	173.40
173.50	0.77344	0.77344	0.77343	0.77343	0.77342	0.77342	0.77342	0.77341	0.77341	0.77340	173.50
173.60	0.77340	0.77340	0.77339	0.77339	0.77339	0.77338	0.77338	0.77337	0.77337	0.77337	173.60
173.70	0.77336	0.77336	0.77336	0.77335	0.77335	0.77334	0.77334	0.77334	0.77333	0.77333	173.70
173.80	0.77333	0.77332	0.77332	0.77332	0.77331	0.77331	0.77330	0.77330	0.77330	0.77329	173.80
173.90	0.77329	0.77329	0.77328	0.77328	0.77328	0.77327	0.77327	0.77327	0.77326	0.77326	173.90
174.00	0.77325	0.77325	0.77325	0.77324	0.77324	0.77324	0.77323	0.77323	0.77323	0.77322	174.00
174.10	0.77322	0.77322	0.77321	0.77321	0.77321	0.77320	0.77320	0.77320	0.77319	0.77319	174.10
174.20	0.77319	0.77318	0.77318	0.77317	0.77317	0.77317	0.77316	0.77316	0.77316	0.77315	174.20
174.30	0.77315	0.77315	0.77314	0.77314	0.77314	0.77313	0.77313	0.77313	0.77312	0.77312	174.30
174.40	0.77312	0.77311	0.77311	0.77311	0.77310	0.77310	0.77310	0.77310	0.77309	0.77309	174.40
174.50	0.77309	0.77308	0.77308	0.77308	0.77307	0.77307	0.77307	0.77306	0.77306	0.77306	174.50
174.60	0.77305	0.77305	0.77305	0.77304	0.77304	0.77304	0.77303	0.77303	0.77303	0.77302	174.60
174.70	0.77302	0.77302	0.77302	0.77301	0.77301	0.77301	0.77300	0.77300	0.77300	0.77299	174.70
174.80	0.77299	0.77299	0.77298	0.77298	0.77298	0.77298	0.77297	0.77297	0.77297	0.77296	174.80
174.90	0.77296	0.77296	0.77295	0.77295	0.77295	0.77295	0.77294	0.77294	0.77294	0.77293	174.90
175.00	0.77293	0.77293	0.77292	0.77292	0.77292	0.77292	0.77291	0.77291	0.77291	0.77290	175.00
175.10	0.77290	0.77290	0.77290	0.77289	0.77289	0.77289	0.77288	0.77288	0.77288	0.77288	175.10
175.20	0.77287	0.77287	0.77287	0.77286	0.77286	0.77286	0.77286	0.77285	0.77285	0.77285	175.20
175.30	0.77284	0.77284	0.77284	0.77284	0.77283	0.77283	0.77283	0.77283	0.77282	0.77282	175.30
175.40	0.77282	0.77281	0.77281	0.77281	0.77281	0.77280	0.77280	0.77280	0.77280	0.77279	175.40
175.50	0.77279	0.77279	0.77279	0.77278	0.77278	0.77278	0.77278	0.77277	0.77277	0.77277	175.50
175.60	0.77276	0.77276	0.77276	0.77276	0.77275	0.77275	0.77275	0.77275	0.77274	0.77274	175.60
175.70	0.77274	0.77274	0.77273	0.77273	0.77273	0.77273	0.77272	0.77272	0.77272	0.77272	175.70
175.80	0.77271	0.77271	0.77271	0.77271	0.77270	0.77270	0.77270	0.77270	0.77269	0.77269	175.80
175.90	0.77269	0.77269	0.77268	0.77268	0.77268	0.77268	0.77268	0.77267	0.77267	0.77267	175.90

Conversion Table - Degrees Two Theta to Interplanar Spacings for copper K Alpha 2 Radiation (1.544390 Angstroms)

Degrees 2 Theta	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Degrees 2 Theta
176.00	0.77267	0.77266	0.77266	0.77266	0.77266	0.77265	0.77265	0.77265	0.77265	0.77264	176.00
176.10	0.77264	0.77264	0.77264	0.77264	0.77263	0.77263	0.77263	0.77263	0.77262	0.77262	176.10
176.20	0.77262	0.77262	0.77262	0.77261	0.77261	0.77261	0.77261	0.77260	0.77260	0.77260	176.20
176.30	0.77260	0.77260	0.77259	0.77259	0.77259	0.77259	0.77258	0.77258	0.77258	0.77258	176.30
176.40	0.77258	0.77257	0.77257	0.77257	0.77257	0.77257	0.77256	0.77256	0.77256	0.77256	176.40
176.50	0.77256	0.77255	0.77255	0.77255	0.77255	0.77255	0.77254	0.77254	0.77254	0.77254	176.50
176.60	0.77254	0.77253	0.77253	0.77253	0.77253	0.77253	0.77252	0.77252	0.77252	0.77252	176.60
176.70	0.77252	0.77251	0.77251	0.77251	0.77251	0.77251	0.77250	0.77250	0.77250	0.77250	176.70
176.80	0.77250	0.77249	0.77249	0.77249	0.77249	0.77249	0.77248	0.77248	0.77248	0.77248	176.80
176.90	0.77248	0.77248	0.77247	0.77247	0.77247	0.77247	0.77247	0.77247	0.77246	0.77246	176.90
177.00	0.77246	0.77246	0.77246	0.77245	0.77245	0.77245	0.77245	0.77245	0.77245	0.77244	177.00
177.10	0.77244	0.77244	0.77244	0.77244	0.77244	0.77243	0.77243	0.77243	0.77243	0.77243	177.10
177.20	0.77243	0.77242	0.77242	0.77242	0.77242	0.77242	0.77242	0.77241	0.77241	0.77241	177.20
177.30	0.77241	0.77241	0.77241	0.77240	0.77240	0.77240	0.77240	0.77240	0.77240	0.77240	177.30
177.40	0.77239	0.77239	0.77239	0.77239	0.77239	0.77239	0.77238	0.77238	0.77238	0.77238	177.40
177.50	0.77238	0.77238	0.77238	0.77237	0.77237	0.77237	0.77237	0.77237	0.77237	0.77237	177.50
177.60	0.77236	0.77236	0.77236	0.77236	0.77236	0.77236	0.77236	0.77235	0.77235	0.77235	177.60
177.70	0.77235	0.77235	0.77235	0.77235	0.77235	0.77234	0.77234	0.77234	0.77234	0.77234	177.70
177.80	0.77234	0.77234	0.77233	0.77233	0.77233	0.77233	0.77233	0.77233	0.77233	0.77233	177.80
177.90	0.77232	0.77232	0.77232	0.77232	0.77232	0.77232	0.77232	0.77232	0.77231	0.77231	177.90
178.00	0.77231	0.77231	0.77231	0.77231	0.77231	0.77231	0.77231	0.77230	0.77230	0.77230	178.00
178.10	0.77230	0.77230	0.77230	0.77230	0.77230	0.77230	0.77229	0.77229	0.77229	0.77229	178.10
178.20	0.77229	0.77229	0.77229	0.77229	0.77229	0.77229	0.77228	0.77228	0.77228	0.77228	178.20
178.30	0.77228	0.77228	0.77228	0.77228	0.77228	0.77228	0.77227	0.77227	0.77227	0.77227	178.30
178.40	0.77227	0.77227	0.77227	0.77227	0.77227	0.77227	0.77226	0.77226	0.77226	0.77226	178.40
178.50	0.77226	0.77226	0.77226	0.77226	0.77226	0.77226	0.77226	0.77226	0.77225	0.77225	178.50
178.60	0.77225	0.77225	0.77225	0.77225	0.77225	0.77225	0.77225	0.77225	0.77225	0.77225	178.60
178.70	0.77224	0.77224	0.77224	0.77224	0.77224	0.77224	0.77224	0.77224	0.77224	0.77224	178.70
178.80	0.77224	0.77224	0.77224	0.77224	0.77223	0.77223	0.77223	0.77223	0.77223	0.77223	178.80
178.90	0.77223	0.77223	0.77223	0.77223	0.77223	0.77223	0.77223	0.77223	0.77223	0.77222	178.90
179.00	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	179.00
179.10	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	0.77222	0.77221	0.77221	179.10
179.20	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	179.20
179.30	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	0.77221	179.30
179.40	0.77221	0.77221	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	179.40
179.50	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	179.50
179.60	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	179.60
179.70	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	179.70
179.80	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	179.80
179.90	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	0.77220	179.90

APPENDIX A

Program Documentation

Program Name: intplanspace (for IBM PC, ipspace.exe)

Type: Main program

Purpose: To produce a table that can be used to convert degrees two theta to interplanar spacings (in Angstrom units) for any wavelength of x-ray radiation.

Machine: Pacific Microsystems 68010 (also IBM PC)

Operating System: UNIX System 5 (for IBM PC, MS-DOS vers. 2.x)

Source Language: C Programming Language

Program Category: Table Generator

Input: The investigator will be asked for the type of target element producing the radiation, which lines of the spectrum are to be used, and the range of angles to include in the output.

Output: A formatted table with headings showing the choices selected for input. The two theta angles, in .01 degree increments, are listed in the margins with the interplanar spacings, in Angstrom units, in the body of the table.

Usage: Type the program name, intplanspace, to start the process. Questions and menus are sent to the UNIX stderr - the terminal used to run the program. All input comes from the stdin device - also the terminal. The output table is sent to stdout - bv default, the terminal, but in normal use, this should be redirected to a file or piped to the line printer.

To redirect the table to a file, type this to run the program:

```
intplanspace >filename
```

where 'filename' is any legal name. The 'greater than' symbol must be there. In this case, all the set up routines will still be handled through the terminal, but the table will be sent only to the file. If you know UNIX, you may also 'tee' a copy off to the terminal, but since it is formatted for a 132 column line printer, it will be hard to read.

To pipe the output table to the line printer, type this:

```
intplanspace ¦ lpr
```

The pipe symbol '¦' and the mnemonic 'lpr' must both be there for this to work. As with the redirection example above, all the set up questions and answers will still be handled through the terminal.

Detailed Usage:

After the program begins running, the following menu appears:

```
Choose one of the following elements using the
letter designation preceding it

a - chromium

b - iron

c - cobalt

d - nickel

e - copper

f - molybdenum

g - user selected wavelength

Letter: e
```

Here, the investigator has chosen 'copper' by typing the letter 'e' and hitting the carriage return. After the carriage return, the next menu appears:

```
Choose one of the three types of lines used to
compute the radiation wavelength, lambda

a - K Alpha 1

b - K Alpha 2

c - K Alpha Weighted Mean

Letter: c
```

The investigator chose 'K Alpha Weighted Mean'. The next menu allows a choice of the range of angles included in the table:

```
Do you want a full table ( 0 to 180 degrees ) or
a partial table, where you choose the range? Type
in 'a' or 'b' below.

a - Full Table

b - Partial Table

Letter: b

Start table at (integer degrees): 45

Finish table at (not including):  49
```

Detailed Usage (cont.):

After selecting a partial table, the choice was made to start the table at 45 degrees and end it at 49 degrees. Notice that only whole degrees (integers) can be entered for the last two lines. Another important point here is that the table will include values to 48.99 degrees only. If the full table had been selected, the last two questions on this menu would have been omitted and the table would have results from 0.00 degrees up to and including 179.99 degrees. The final menu is a summary of the selections the investigator has made:

```
The following parameters have been chosen:

Element Type - copper

Line type - K Alpha Weighted Mean

Lambda - 1.541838

Table range from 45 to 49 degrees

Is this correct? (yes or no) no
```

Typing anything starting with a 'y' or 'Y' will allow the program to start generating the table, but here, a 'no' has been typed, so the program restarts the set-up phase with the opening menu:

```
Choose one of the following elements using the
letter designation preceding it

a - chromium

b - iron

c - cobalt

d - nickel

e - copper

f - molybdenum

g - user selected wavelength

Letter: g

Wavelength (in Angstrom units): 1.234567
```

Detailed Usage (cont.):

This time, 'user selected wavelength' was chosen, so an additional prompt is displayed and a wavelength in Angstrom units must be typed in. Because there is no need for the investigator to select the line type, the program skips that menu and asks again for the two theta range of the table:

```
Do you want a full table ( 0 to 180 degrees ) or
a partial table, where you choose the range? Type
in 'a' or 'b' below.

a - Full Table

b - Partial Table

Letter: b

Start table at (integer degrees): 45

Finish table at (not including):  49
```

Notice that this prompt must be answered again. It isn't possible to default to the answers given the first time through.

Finally, the summary of selections is given again:

```
The following parameters have been chosen:

Element Type - user selected wavelength

Line type -

Lambda - 1.234567

Table range from 45 to 49 degrees

Is this correct? (yes or no) yes



Generating user selected wavelength Table
```

This time, an answer of 'yes' is given and the response is 'Generating ...... Table'. Since the output may take a while to to start or may be silent, this message lets the investigator know that it's out of his hands now. Upon completion, the program will terminate with a 'table finished for ... ' message.

Restrictions: When asked for single letter responses, you must be sure to type in only one letter and then a carriage return. Also, when asked to respond 'yes' or 'no', you must limit your response to five characters and there must be no blanks embedded in the answer. These restrictions are due to the way input is handled by the C programming language.

The range of the table must be from whole degrees to whole degrees. Start and stop limits cannot be given in tenths of degrees.

Both of these restrictions could be removed, with some software changes, if they prove to be major problems.

Subprograms Required: None

Storage Requirements: 22.8K Bytes (for IBM PC, 30.6K Bytes)

APPENDIX B

Program Listing

```
#include <stdio.h>
#include <math.h>

#define NTYPE (sizeof(elements) / sizeof(struct format))
#define FULLPAGE 40     /* a new page is started every 40 * 0.1 degrees  */

#define D2R 0.0174532925199433  /* conversion factor - degrees to radians */

struct format
{
   char *full_name;/* Element     Symbol  K Alpha    K Alpha    Weighted  */
   char *symbol;   /*  name                  1          2          mean     */
   double length[3];
} elements[] = {     "chromium",   "cr",  2.289700,  2.293606,  2.291002,
                     "iron",       "fe",  1.936042,  1.939980,  1.937355,
                     "cobalt",     "co",  1.788965,  1.792850,  1.790260,
                     "nickel",     "ni",  1.657910,  1.661747,  1.659189,
                     "copper",     "cu",  1.540562,  1.544390,  1.541838,
                     "molybdenum", "mo",  0.709300,  0.713590,  0.710730,
       "user selected wavelength", "  ",  0.000000,  0.000000,  0.000000 };

main()                   /*  Program to calculate table for converting  */
                         /*  degrees two theta to interplanar spacing   */
                         /*  for x-radiation                            */
{

   int heading(), hyph_line(), set_up();
   int i, end_page, twotheta;
   int begin_deg, finish_deg;
   char *type;
   char *line_type;
   double lambda, spacing;


   set_up( &type, &lambda, &line_type, &begin_deg, &finish_deg );
      /* this is the function that interacts with the investigator - */
      /* the choice of element and line type are made here and       */
      /* the range of angles to be converted is input here.          */

   end_page = begin_deg;  /* make sure there are 4 degrees per page no */
                          /* matter what the initial angle is          */

   fprintf(stderr,"\n\n\n\n\nGenerating %s Table\n", type);

/* main program loop - twotheta is an integer that counts the angle in
                       tenths of a degree. Within a line, for a given
                       twotheta, the angle is further subdivided into
                       hundredths of a degree. Notice that for a whole
                       degree, twotheta must be incremented by 10 */
   for( twotheta = begin_deg; twotheta < finish_deg; twotheta++ )
   {

      if( twotheta % 10 == 0 && twotheta != begin_deg ) /* print line of */
         hyph_line();                                   /* hyphens if at a whole */
                                    /* degree (but not beginning degree) */
      if( twotheta == end_page )
      {
         if( twotheta != begin_deg ) /* form feed only if not first page */
            printf("\f");
         heading(type, line_type, lambda);/* print heading - top of page */
         end_page += FULLPAGE;  /* set the 'look for' count to know when */
      }                         /* next page will start  */

      /* start of one line print */

      printf("%6.2f ", (twotheta * 0.1) );  /* print angle value */
      for(i = 0; i < 10; i++)    /* print 10 values of spacing for each */
      {                          /* .01 degree                          */

         if( twotheta + i == 0 )  /* takes care of the first data value */
            spacing = 0.0;        /* because it causes division by zero */
         else
            spacing =
                 lambda / (2.0 * sin(.05 * (twotheta  + (i * .1)) * D2R));

         if( spacing < 10000.0 )         /* normal format for spacing */
            printf(" %10.5f", spacing);
         else                           /* special format for spacings */
            printf(" %10.4f", spacing); /* at very low angles          */
      }
      printf("  %6.2f\n", (twotheta * 0.1) ); /* print angle value again */

      /* end of one line print */

   } /* end of main program loop */

   putchar('\f');   /*  end of table - send form feed to printer */

   fprintf(stderr,"\n\n\n\n\ntable finished for %s\n", type);
   exit(0);
}
/* start of function to interact with investigator - sets up menus and  */
/* interprets answers - loops until investigator is happy with choices  */
int
set_up( type, lambda, line_type, begin_deg, finish_deg )
char **type;     /* points to pointer to string containing element name */
double *lambda;  /* points to the wave length to be used in this program */
char **line_type; /* pointer to pointer to string containing line name */
int *begin_deg, *finish_deg; /* pointers to limits of angles to be con- */
                             /* verted in this program */
```

```
{
   static char *lines[4] =
                 { "K Alpha 1", "K Alpha 2", "K Alpha Weighted Mean", "" };
   char answer[5], designator, buffer;
   int i, elmt_select, line_select, error;

   do   /* main function loop - continues till 'yes' answer at end */
   {
        /*** section 1 - get element type ***/
      fprintf(stderr,"\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n");
      fprintf(stderr,"Choose one of the following elements using the \n");
      fprintf(stderr,"letter designation preceding it\n\n\n\n");
      for( designator = 'a', i = 0; i < NTYPE; designator++, i++ )
         fprintf(stderr,"%c - %s\n\n", designator, elements[i].full_name);

      do /* ask for 'Letter' until a valid answer is returned */
      {
         fprintf(stderr,"\n\nLetter: ");
         scanf("%1s", &designator);
         designator = tolower(designator);
      } while
          ( (elmt_select = designator - 'a') < 0 || elmt_select >= NTYPE );

      *type = elements[elmt_select].full_name;

      if( elements[elmt_select].length[0] == 0.0 ) /* if 'g'             */
      {                                            /* category chosen... */
         fprintf(stderr,"\n\nWavelength (in Angtrom units): ");
         scanf("%lf", lambda);
         *line_type = lines[3];
      }
      else                                      /* if a specific element  */
      {                                         /* name chosen....        */
         fprintf(stderr,"\n\n\n\n\n\n\n\n\n\n\n\n\n\n");
         fprintf(stderr,"Choose one of the three types of lines used to \n");
         fprintf(stderr,"compute the radiation wavelength, lambda\n\n\n\n");

         for( designator = 'a', i = 0; i < 3; designator++, i++ )
            fprintf(stderr,"%c - %s\n\n", designator, lines[i]);

         do /* ask for 'Letter' until a valid answer is returned */
         {
            fprintf(stderr,"\n\nLetter: ");
            scanf("%1s", &designator);
            designator = tolower(designator);
         } while
              ( (line_select = designator - 'a') < 0 || line_select >= 3 );

         *lambda = elements[elmt_select].length[line_select];
         *line_type = lines[line_select];
      }
```

```
/*** section 2 - select range of table ***/

fprintf(stderr,"\n\n\n\n\n\n\n\n\n\n\n\n");
fprintf(stderr,"Do you want a full table ( 0 to 180 degrees ) or\n");
fprintf(stderr,"a partial table, where you choose the range? Type\n");
fprintf(stderr,"in 'a' or 'b' below.\n\n\n\n");
fprintf(stderr,"a - Full Table\n\nb - Partial Table\n\n");

do /* ask for 'Letter' until a valid answer is returned */
{
   fprintf(stderr,"\n\nLetter: ");
   scanf("%1s", &designator);
   designator = tolower(designator);
} while( designator != 'a' && designator != 'b' );

fprintf(stderr,"\n\n");
if( designator == 'a' )   /* if 'full table' option chosen... */
{
   fprintf(stderr,"\n\n\n\n\n\n\n\n");
   *begin_deg = 0;
   *finish_deg = 1800;
}
else                     /* if 'partial table' option chosen... */
{
   do /* ask for angles until valid answers are returned */
   {
      fprintf(stderr,"\n\n\nStart table at (integer degrees ): ");
      scanf("%d", begin_deg);
      fprintf(stderr,"\n\nFinish table at (not including ):  ");
      scanf("%d", finish_deg);
      error = 0;
      if( *begin_deg < 0 || *begin_deg > 180 )
         error = 1;
      if( *finish_deg < 0 || *finish_deg > 180 )
         error = 1;
      if( *begin_deg >= *finish_deg )
         error = 1;
   } while( error );
   *begin_deg *= 10;
   *finish_deg *= 10;
}
fprintf(stderr,"\n\n\n\n\n\n\n\n\n\n\n\n");
fprintf(stderr,"The following parameters have been chosen:\n\n");
fprintf(stderr,"Element type - %s\n\n", *type);
fprintf(stderr,"Line type - %s\n\n", *line_type);
fprintf(stderr,"Lambda - %8.6f\n\n", *lambda);
fprintf(stderr,"Table range from %d to %d degrees\n\n",
   *begin_deg/10, *finish_deg/10);
fprintf(stderr,"\n\nIs this correct? (yes or no) ");
```

```
      scanf("%s", answer);
      error = 1;   /* assume 'no' answer */
      if( !strncmp( answer, "y", 1 ) || !strncmp( answer, "Y", 1 ) )
         error = 0; /* change to 'yes' if answer starts with 'y' or 'Y' */
   } while( error );

   return;
}

int
heading(type, line_type, lambda) /* print heading at top of each page */
char *type;      /* name of element */
char *line_type; /* K Alpha 1, K Alpha 2 or Weighted Mean */
double lambda;   /* wavelength for that element and line type */
{
   static char blank[] = "";

   printf("\n\n\n\n%33s", blank);
   printf("Conversion Table - Degrees Two Theta to Interplanar Spacings\n");
   printf("%33sfor %s %s Radiation (%8.6f Angstroms)\n",
                              blank, type, line_type, lambda );

   printf("\n\n\n Degrees     .00        .01        .02        .03");
   printf("        .04        .05        .06        .07        .08");
   printf("        .09    Degrees\n 2 Theta %109s 2 Theta\n", blank);
}

int
hyph_line()                     /* print a line of hyphens after each */
{                             /* degree of 2 Theta                  */

   static char hyphens[] = "------------------------";

   printf("%s%s%s%s%s\n", hyphens, hyphens, hyphens, hyphens, hyphens);

}
```